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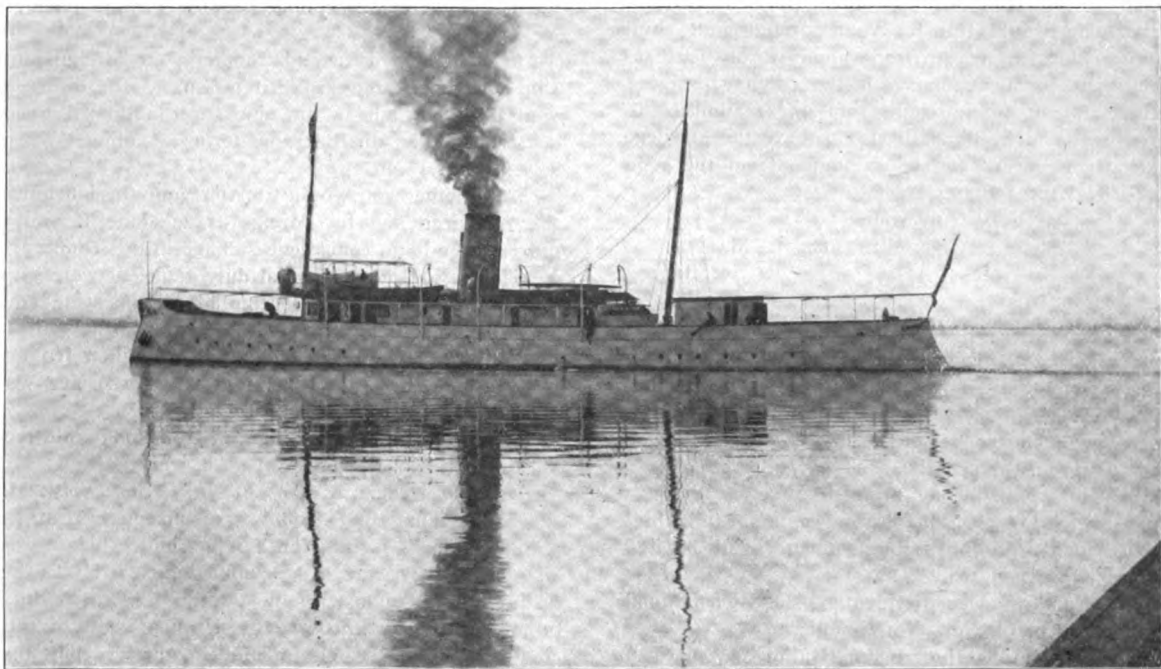
CLEVELAND, O., DECEMBER 8, 1904.

No. 23.

CANADIAN FISHERIES CRUISER VIGILANT

The revenue cutter *Vigilant*, built for the Dominion government by the Polson Iron Works, Toronto, for the protection

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CANADIAN FISHERIES CRUISER VIGILANT.

of the Canadian fisheries on Lake Erie, recently visited a number of cities and has gone into ordinary for the winter at Detroit. The *Vigilant* is a flush deck vessel, having a ram bow and elliptic stern of a somewhat similar type to the small cruisers in the British naval service. Under forced draft she can make nearly 18 miles an hour, so that she is considerably faster than any fishing craft on the lakes. The *Vigilant* is schooner rigged with jib headed foresail and mainsail. She is constructed of steel throughout and is of the following dimensions: Length on load water line, 176 ft.; beam, molded, 22 ft.; depth from top of keel to top of main deck, 14 ft. 3 in.; draught, loaded with 50 tons of coal, 8 ft. She is fitted with two sets of triple-expansion engines, having cylinders 13½, 22 and 36 in. diameters by 21-in. stroke, supplied with steam from two Scotch boilers 11½ ft. in diameter and 13 ft. long, built for working pressure of 200 lbs. The accommoda-

tions for officers and crew are all arranged below the main deck and are well provided with light and air. The vessel has a singular handsome appearance and is entirely the product

The steamer *Victorian* building at Belfast for the Allan Line will sail on her maiden voyage to Montreal on Feb. 23rd next. She will be the first passenger steamer to be equipped with turbines to cross the Atlantic ocean.

Healy, Tibbitts & Co., contractors, have offered to construct the new wharves at San Francisco for the Pacific Mail Steamship Co. for \$309,673, if a single-decked wharf is built, and for \$329,673 if the wharf is double-decked. The cement will cost \$42,000 additional. The harbor commissioners will lease the wharves to the highest bidder, the lessee to pay the cost of construction and be repaid in the form of rent.

OPPOSED TO FREE SHIPS

Inquiries on the question of free ships have been sent by the Merchant Marine Commission to the American owners of foreign built steamships. These inquiries and the replies thus far received are as follows:

Dear Sirs:

It is stated in the report of the commissioner of navigation for 1902 that you are the owners in whole or in part of several steamships foreign built and now flying foreign colors. The Merchant Marine Commission is charged by congress to ascertain, if possible, the best method of increasing American tonnage in the over-seas trade. Will you kindly state for the information of the commission:

1. Whether you would, if so authorized by congress, transfer your foreign ships to American registry to engage exclusively in the foreign trade, but to remain without subsidy, differential duty or any other government encouragement?

2. Whether you would transfer your foreign-built steamships to American registry if they were admitted to all or part of any subsidy or differential duty granted by our government, but were still confined to the foreign trade?

3. Whether you would transfer your foreign-built steamships to American registry if no subsidy or differential duty were granted, but if the ships were allowed to enter the coastwise trade on the same terms as other American vessels?

4. Whether you would transfer your foreign built ships to the American flag for foreign trade alone if you were required to build an equivalent tonnage in this country?

5. Whether, if your foreign built ships were admitted to American registry, you would wish also to have the privilege of employing alien officers and be exempted from the food scale required by United States law

Very truly yours,

WINTHROP L. MARVIN,
Secretary.

Messrs. W. R. Grace & Co. of New York reply:

"To question No. 1 we reply in the negative.

"To No. 2 we reply that we would probably if entitled to full subsidy.

"No. 3 we answer affirmatively.

"No. 4 we answer in the negative.

"No. 5. Our answer is, we would prefer to have the privilege of employing aliens for positions below captains and chief engineers, but would not object to compliance with United States law respecting food scale."

Mr. P. A. S. Franklin, vice president of the International Mercantile Marine Co. of New York, replies:

"1. If congress should authorize the issuing of American register to foreign built ships to engage exclusively in the foreign trade, but provide for no governmental assistance to such ships, we could not afford to transfer any of our foreign built ships to American register, as the increased cost of operating steamers under the American flag compared with steamers under foreign flags in the same trade, would be too great to warrant the transfer.

"2. If foreign built steamers were admitted to American register and were granted sufficient governmental assistance (either by subsidy or otherwise) to offset the increased cost of operating under the American flag as compared with the cost under a foreign flag, we would doubtless take advantage of this act and transfer some of our steamers now under foreign register to American register.

"3. If no subsidy or other assistance were granted by congress to foreign built ships transferred to American register, but such steamers were permitted to enter the coastwise trade on the same terms as other American vessels, there would be no inducement to make the transfer as steamers constructed

for the foreign trade are not generally suitable for coastwise trade.

"4. If congress should pass an act providing for the admission to American register of foreign built ships under an agreement on the part of the ship owner to build an equal amount of tonnage in this country, we would not take advantage of this act unless, in addition, governmental assistance was provided sufficient to offset the increased cost of building and operating steamers under American register.

"5. If foreign built ships were admitted to American register we would not care for the privilege of employing alien officers and to be exempted from the food schedule required by United States laws, provided the assistance offered by the government as an offset to increased expenses were sufficient to cover the increased cost of wages and provisions of the American crew."

Mr. Bernard H. Baker, formerly president of the Atlantic Transport Co. of Baltimore, Md., replies:

"1. Whether you would, if so authorized by congress, transfer your foreign built ships to American registry to engage exclusively in the foreign trade, but to remain without subsidy, differential duty or any other government encouragement? (Ans.) No.

"2. Whether you would transfer your foreign built steamships to American registry if they were admitted to all or part of any subsidy or differential duty granted by our government, but were still confined to the foreign trade? (Ans.) Yes.

"3. Whether you would transfer your foreign built steamships to American registry if no subsidy or differential duty were granted, but if the ships were allowed to enter the coastwise trade, on the same terms as other American vessels? (Ans.) No.

"4. Whether you would transfer your foreign built ships to the American flag for foreign trade alone, if you were required to build an equivalent tonnage in this country? (Ans.) Yes, if subsidy or differential duty sufficient were given.

"5. Whether, if your foreign built ships were admitted to American registry, you would wish also to have the privilege of employing alien officers and be exempted from the food scale required by United States law? (Ans.) Yes, would wish privilege to employ alien officers.

"No, would not wish exemption from food scale required by United States law."

Messrs. T. Hogan & Sons of New York reply:

"No. 1. That there would be no incentive, from a business point of view, to transfer foreign built ships to American registry, if they were to be confined exclusively to the foreign trade but to remain without subsidy, differential duty or any other government encouragement, on account of the greater cost of operating vessels under the American flag than under some foreign flag.

"No. 2. The advisability of transferring foreign built ships to American registry if they were to be admitted to all or part of any subsidy or differential duty granted by our government yet confined to foreign trade, would depend entirely upon the amount of such remuneration that the steamers would receive under such subsidy or differential duty. If it did not fully compensate for the extra cost of operation there would be no advantage to be gained by making the change.

"No. 3. We would not say at the present time whether we would want to transfer our foreign built ships to American register without subsidy, but with the privilege of entering the coastwise trade.

"No. 4. The answer to No. 1 practically covers this question also. There would be nothing gained by transferring foreign built ships to American registry and building an equivalent tonnage in this country, unless both classes of vessels participate in the subsidy or differential duty.

"No. 5. In view of the possibility that there might not be a

sufficient number of experienced officers and engineers to man all American and foreign built ships operating under American registry, we would deem it advisable that the privilege should be granted of employing alien officers and engineers, at least for a term of years after the passage of any legislation granting American registry to foreign built vessels.'

Mr. John A. Donald, of the Donald Steamship Co., Inc., of New York, replies:

"1. I beg to state that on my own behalf as official president of this company, without consulting my directors, that I would not feel inclined to transfer our foreign built ships to American registry without some inducement for doing so.

"2. I think on the conditions indicated in your question that we would be willing to transfer our foreign built ships to American registry, to be confined to the foreign trade.

"3. I believe we would not be willing to transfer our foreign built ships to American registry in order to participate in the benefits of the coasting trade, as we believe that if a general transfer of other firms' property was put in that trade it would be as much depressed as the foreign trade for American ships.

"4. I am not prepared to state that we would transfer our foreign built ships to the American flag for foreign trade alone, if we were required to build an equivalent tonnage in this country.

"5. I am not prepared to state that we would desire to have the privilege of employing alien officers for our foreign built ships if they were admitted to American registry."

CASE OF THE PROGRESO DECIDED

An interesting and important decision in regard to marine matters has just been delivered by United States District Judge de Haven, of San Francisco, Cal. The opinion delivered by Judge de Haven should be of much interest to all marine corporations owning steam vessels; and it was regarding the limiting of the liability of companies under certain circumstances. On Dec. 3, 1902, the large iron steamship Progreso blew up while that vessel was lying at the Fulton Iron Works of San Francisco, undergoing some minor repairs. The accident was a frightful one, resulting in the awful death of several persons, the injury of many more, and involved the almost total destruction of the vessel. The Progreso belonged to the Michigan Steamship Co.

Claims to the amount of \$100,000 had been filed by heirs of the deceased against the company. The decision of Judge de Haven limits the liability of the steamship company to \$15,020, the appraised value of the wreck.

Heirs of the crew of the Progreso killed by the explosion will be entitled to damages, but the suits brought by heirs of employes of the Fulton Iron Works are dismissed.

Judge de Haven holds that the steamship company is liable for the damages claimed by the heirs of the seamen employed by it, and is entitled to limit its liability as to such damages; but it is not responsible for the damages claimed by the employes of the Fulton Iron Works.

The court holds that the fearful explosion was directly caused by a Fulton Iron Works employe named McGinley, holding a lighted candle within a few inches of the hole that he had drilled in the immense oil tank, thereby igniting the escaping gas. The negligence of the Michigan Steamship Co. in placing oil on board the Progreso which would flash at the low temperature of 85 degrees in a tank not properly supplied with ventilators, was not the proximate cause of the explosion, in the court's opinion. The Progreso was an oil-fuel vessel. She was an old steamer and had been built in New York, but been in Pacific waters for some time. The damage suits have been in litigation ever since the explosion.

The five-masted schooner Dorothy O. Barrett was launched from the yard of G. G. Deering, Bath, Me., last week.

LAUNCH OF ARMORED CRUISER TENNESSEE

The armored cruiser Tennessee was launched on Saturday last at Cramps, Philadelphia, in the presence of distinguished guests from the state after which the vessel is named and a number of navy and army officials. The christening party included Gov. Frazier, his staff, Mrs. Frazier, and their daughter, Annie Keith Frazier, who was sponsor for the ship. They were accompanied to the stand by Charles H. Cramp, Edwin S. Cramp, Courtland Cramp and Secretary Taylor of the Cramp company. Up to almost the moment when the big warship started down the ways a drizzle of sleet and rain fell continuously, but during the actual launching the sun shone through the clouds, the sky again becoming overcast shortly after the ship took the water.

Miss Frazier carried a huge bouquet of American Beauty roses, on which was attached a bottle of champagne, and as the vessel quivered as it was about to take its initial dip Miss Frazier struck the prow two resounding blows, at the same time pronouncing the baptismal words in a clear voice. As the Tennessee glided into the Delaware river there was a great cheer from the spectators, and the various craft in the stream gave many shrill and prolonged blasts from their whistles.

Driven by a stiff northeast wind, the river was rapidly running down, and the vessel was launched immediately upon the arrival of the christening party, ten minutes before 11 o'clock, the hour scheduled. Immediately after the launch luncheon was served in the mold loft.

The official party from Washington included Admiral M. T. Endicott, chief of the bureau of yards and docks; Com'dr Reeves of the bureau of inspection, and Mrs. Reeves; Lieut. Com'dr Bryan, bureau of engineering; Lieut. V. O. Chase, bureau of equipment; Com'dr A. B. Canaga and Lieut. Com'dr Parks, bureau of engineering; Pickers Neagle, judge advocate-general; E. P. Hanna, judge advocate-general; John Biddis, S. L. Besselmire, W. T. Powell and Mr. Brewer of the bureau of construction; J. B. K. Lee, Mr. Lynch and Mrs. Robinson, from the navy yard; Lieut. Crawford of Admiral Dewey's staff; Capt. Boutakoff, wife and two children, and Col. Raspopoff of Russia; Com'dr Lar, Argentine naval attache, and Mr. and Mrs. George B. Williams. John Nordhouse, Admiral Capps, chief of construction; Lieut. Com'dr Takashita, Japanese naval attache, and Chekib Bey, Turkish minister, were also present.

These members of the Nashville chamber of commerce, which sought to have the cruiser named in honor of their state, were present: William C. Collier, E. R. Eastman, J. W. Judd, George R. Knix, and Ben Lee Brock.

Of 14,500 tons displacement, the Tennessee will be one of two of the most powerful cruisers constructed. The other, the Washington, now being built at the yards of the New York Ship Building Co., is a sister ship in every respect. She will probably slide from the ways on Washington's birthday. Congress recently appropriated money for the building of two more of the class of the Tennessee, and the Cramp company is among the firms who have sent proposals.

The armor of the Tennessee is of sufficient thickness to withstand the impact of projectiles fired at fighting range from vessels carrying guns of the same caliber as hers. Required to speed 22 knots an hour for four consecutive hours, her engines are designed to develop a collective horse power of 23,000. The coal capacity, normal, is 900 tons. The maximum bunker capacity 2,000 tons. At the most economical speed her steaming radius is estimated to be about 12,000 miles.

The armament of the Tennessee will be: Main battery, four 10-in. breech-loading rifles, 45-caliber in length; sixteen 6-in. rapid-fire, 50-caliber in length; secondary battery, eighteen 3-in. breech-loading rifles, twelve 3-pounder rapid-fire guns, eight 1-pounder, rapid-fire guns, two 3-in. field guns, eight machine guns.

On the water line belt her armor is 7 ft. 6 in. in width, extending the entire length of the vessel, and that covering the space occupied by the engines and boilers, will be 6 in. thick. From there it tapers to a thickness of $3\frac{1}{2}$ in. For a length of 232 ft. above the main belt line the side will be protected by 5-in. armor extending vertically through the main deck. At the ends are transverse armor bulkheads 4 in. in thickness, 5-in. armor protecting the 6-in. guns, 6-in. armor the 8-in. turret, except the port plates, which are $6\frac{1}{2}$ in.; 6-in. barbettes, a conning tower 9 in. thick, and a protective deck of nickel-steel extending throughout the vessel, $1\frac{1}{2}$ in. on the flat, 4 in. in thickness on the slope.

LAUNCH BUILDERS ARE BUSY

The launch builders report that they are quite busy. Small Bros. of Boston have an order for a new power craft to cost \$14,000. She will be 60 ft. on the water line and will be quite a seaworthy boat. She is for one of the officials of the Napier Co. and the engines are building in England. Small Bros. also have an order for a 21-footer for C. F. Beyere of Erie, Pa., and a 12 and 22-footer for H. L. Bowden of Boston.

The Matthews Boat Co., Bascom, O., are also busy with orders and are reaching customers over a wide territory as the following list of persons especially interested in their launches will testify: Wm. Allen, 73 Forest street, New Bedford, Mass.; J. A. Atwood, Waukegan, Conn.; George L. Aumoch, 403 N. Aurora street, Ithaca, N. Y.; Arthur D. Beach, 61 Woodside avenue, Gloversville, N. Y.; Otto Biederstaedt, care of Capital hotel, Madison, Wis.; J. C. Boobyer, 245 Fourth avenue, Pittsburg, Pa.; Wm. H. Booth, Walker, Minn.; R. K. Chrisman, 526 Columbus avenue, Syracuse, N. Y.; C. S. Crawford, 601 Bakewell building, Pittsburg, Pa.; S. H. Day, 338 South Grand avenue, Los Angeles, Cal.; Will L. Droyer, Box 143, Greenville, O.; E. S. Fidler, Pestiligo, Wis.; Wm. H. Field, 416 First street, Evansville, Ind.; G. C. Finley, Clifton, Tex.; J. E. Fitch, 2841 Magazine street, New Orleans, La.; Frank J. Goetz, 95 Kely street, Rochester, N. Y.; Sigurd Holm, Sauk Center, Minn.; Jos. A. Horlick, Jr., Dekoran avenue, Racine, Wis.; F. S. Lawson, 1417 Edgecomb place, Chicago, Ill.; B. J. McNeil, 704 N. First street, Richmond, Va.; E. Leonard, Box 720, Portland, Ore.; A. F. Meyer, 3107 Grand avenue, Milwaukee, Wis.; John A. Nutter, 56 Heard street, Chelsea, Mass.; R. J. Smith, 251 Third avenue, Detroit, Mich.; A. C. Townsend, New Brighton, Pa.

ENGINE AND BOAT MANUFACTURERS

At the last meeting of the executive committee of the National Association of Engine and Boat Manufacturers, it was decided that sanction would be granted for only one show during 1905 and that would be the affair to be held in conjunction with the sportsmen's show in February. For that occasion, water space has been reserved for the boats and has almost all of it been sold. This being the first national show, the interest taken insures one of the most interesting exhibits of this industry. It was decided to have the annual meeting of the association during the first week of the show. The following were elected active members: James A. Reeves, representing the Western Launch & Engine Works, Inc.; Everett Hunter, representing the Hunter-Wechler Boat Co.; John A. Murray, representing Murray & Tregurtha Co.; L. D. Huntington, Jr., representing Huntington Mfg. Co.; Frank A. Brockway, representing the Lake Shore Engine Works; Thomas Stone, representing Thomas Stone & Co.; C. D. Holmes, representing the Auto Boat Co.; John W. Newbury, representing Newbury & Dunham; H. E. Danzenbecker, representing the Yacht, Gas Engine & Launch Co.; W. H. Mullins, representing the W. H. Mullins Co. The following were

appointed a membership committee: Messrs. H. Newton Whittelsey, chairman; Albert E. Eldredge and J. S. Bunting.

ANNUAL REPORT OF LIFE-SAVING SERVICE

The general superintendent of the life-saving service has rendered his report for the fiscal year ending June 30, 1904. During the year assistance was rendered by the life-saving crews of 1,061 vessels of all kinds, ranging from small pleasure craft to the larger ocean going vessels, involving the lives of over 3,300 persons, and property to the value of nearly seven million dollars. The crews also rescued 103 persons not on board vessels from various perilous situations, and through the signal warnings of the beach patrols, saved from possible disaster 161 vessels which were discovered running into danger of stranding. A comparison of the year's work with that of former years shows that the number of disasters occurring within the effective range of operations of the service was the same as in 1901, which is the largest in its history, while with the exception of that year, the number of vessels totally lost was the smallest since 1877 when the whole number of disasters was only about one-sixth as many as during the past year. While the number of disasters was greater, the number of lives and value of property imperiled were considerably smaller than for several years past, due to the fact that the vessels wrecked were generally of small tonnage.

There were 359 casualties to registered vessels, involving 2,525 persons, of whom twenty-one were lost. The estimated value of these vessels was \$4,698,855, and that of their cargoes \$1,757,925, making the total estimated value of property imperiled, \$6,456,780. Of this amount there was saved \$5,089,950, and \$1,366,830 was lost. Of the 359 vessels which suffered disaster, fifty were totally lost.

Among the smaller craft, not registered, such as sail boats, row boats, pleasure launches, etc., 411 casualties occurred, imperiling the lives of 803 persons, thirteen of whom were lost. The value of these vessels with their cargoes was estimated at \$248,750, with a loss of \$8,620. This makes the total number of disasters to vessels of all kinds 770, with a valuation of \$6,705,530, of which \$5,330,080 was saved and \$1,375,450 was lost. The total number of persons involved was 3,328, of whom thirty-four lost their lives. These figures do not include the 103 persons saved from perilous situations, not on board vessels, nor the 161 vessels saved by timely warnings from impending danger.

The net expenditure for the maintenance of the service during the fiscal year was \$1,766,446.82.

At the close of the year the service embraced 196 stations on the Atlantic and Gulf coast, sixty on the great lakes, one at Louisville, Ky., (falls of the Ohio river), and sixteen on the Pacific coast, making a total of 273. This does not include three new stations authorized by congress at Fishers island, N. Y., Old Topsail Inlet (Beaufort), N. C., and Bogue Inlet, N. C., the construction of which was commenced during the year, and all of which have since been added to the active force of the service. New station buildings to replace old and inadequate stations at Racine, Wis., Sabine, Texas, and Longbranch, N. J., and a new station on Great Wass island, Me., to replace the old one on Crumple island, were also completed and occupied during the year. Work on the new station authorized for Ocracoke island (near Ocracoke Inlet), N. C., was considerably delayed by difficulties encountered in securing title to the required site. These, however, have now been overcome, and the construction of the necessary buildings is under way. Work was also commenced on new stations at Little Kinnakeet, N. C., and Cape Henry, Va., during the year, and the former is now completed and about to be occupied. Steps were taken looking to the erection of modern stations at Muskegon and Grande Pointe au Sable, Mich., and extensive repairs have been made at Charlotte, N. Y.,

and Evanston, Ill., as well as numerous minor repairs to stations and equipment through the service as it has been found necessary.

The telephone system maintained by the service has, as heretofore, proved of great assistance, and much attention has been given to its improvement and extension. Numerous points not heretofore reached have been connected, metallic circuits have been provided where the proximity of high power electric currents have made it desirable, cables have been laid across inlets, etc., and the line has been kept constantly in such repair that, even under the most adverse circumstances, communication has not been seriously interrupted for more than a few hours at any time. The life-saving service lines, which now extend practically unbroken from Maine to the Carolinas, has connection at all important points with the commercial telephone and telegraph lines of the country, and also, where desirable, with the lighthouses and weather bureau offices on the coast, making them available for instant communication by underwriters and ship owners as well as the different branches of the government service. The life-saving stations constitute an important factor in the system of coast guard patrol maintained by the navy department for protecting the coast in time of war, and it is expected that the wireless telegraph system now being tested by the navy will, when sufficiently perfected, be extended to the life-saving stations; in fact, plans are already being prepared for its installation, and when the system is put into operation, the usefulness of the stations, in connection with the extensive telephone lines, as a means of communication not only between government vessels of the navy and revenue cutter service and the departments, but between the growing number of large ocean liners which are being equipped with the wireless telegraph and their owners and agents, will be greatly increased.

The telephone service on the great lakes, which consists of a number of short lines maintained by this service and the weather bureau, and connections with local exchanges, has been materially improved during the year by the construction of a line recently authorized by congress from the mainland on the eastern side of Green Bay, Wis., across Death's Door to the Plum Island station, thence across Washington Island, and terminating at the lighthouse on Rock Island. This line is now completed and in satisfactory operation.

The general superintendent again earnestly urges the justice and propriety of extending the retirement system of the army and navy to the members of the life-saving service, thus providing for those who become disabled in the line of duty or unfit for further service by reason of advancing age.

SHIPBUILDING DURING NOVEMBER

The bureau of navigation reports eighty-three sail and steam vessels of 20,282 gross tons were built in the United States and officially numbered during November as follows:

Districts.	Wood.				Steel.				Total.	
	Sail.		Steam.		Sail.		Steam.		No.	Gross.
	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.		
Atlantic & Gulf.....	34	16,448	18	556	1	331	5	1,412	58	18,747
Porto Rico.....	2	399	7	596	.....	.....	.....	.....	9	995
Pacific.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hawaii.....	1	12	.....	.....	.....	.....	.....	.....	1	12
Great L's.....	.....	.....	15	528	.....	.....	.....	.....	15	528
Western Rivers.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	37	16,859	40	1,680	1	331	5	1,412	83	20,282

During a blow and a mix-up of vessels and tugs at Ashtabula Saturday night, another of the Steel Corporation vessels, the Corsica, sustained damage by collision with the breakwater that will necessitate docking for bottom repairs.

ITEMS OF GENERAL INTEREST

The steamer Zapora built for the International Fisheries Co. by Crawford & Reid, Tacoma, Wash., was launched recently.

The Pacific Coast Steamship Co. of Seattle, Wash., will remodel the Alaska steamer City of Topeka at an expense of \$50,000 this winter.

The three-masted schooner Hersis A. Colwell was launched last week at Phippsburg, Me. She is 160 ft. long, 35 ft. beam and 12 ft. deep.

It is stated that the New York Ship Building Co., Camden, N. J., will launch the armored cruiser Washington on Feb. 22nd next, Washington's birthday.

The vacancy in the list of rear-admirals created by the retirement of Rear-Admiral Theodore F. Jewell will be filled by the promotion of Royal Bradford.

Seagoing vessel owners are complaining of the unnecessary delays caused by the pilots for the port of Quebec in coming on board. An official inquiry will likely take place.

Carleton, Norwood & Co., Rockport, Me., launched their sixty-sixth vessel last week. This is the four-masted schooner Addison Bullard, 205 ft. long, 42 ft. beam and 19 ft. deep.

The Turbinia, during the winter, it is stated will have some improvements effected. It is proposed, among other things, to remove the rigid ballast and to fit in water ballast tanks.

Plans of the two scout cruisers authorized by the last congress have been sent to the Mare Island navy yard so that it is likely that these vessels will be built at that yard.

Capt. C. A. Davis, Somerset, Mass., says that he has leased a piece of land at Nott's Point, Stonington, Conn., to build two small light-draught schooners for the lumber trade. What he will do with the yard after these vessels are built is uncertain.

It is expected that the matter of applying the coasting laws to trade between the United States and the Panama canal zone will be taken up at the coming session of congress. The reservation of this trade to American ships would stimulate ship yards greatly.

The Hamilton Steamboat Co. at its annual meeting declared the usual dividend of 10 per cent for the past year. The company has done a large business during the year, the advent of the Turbinia, having had the effect of increasing traffic as a whole between the two points.

One of the modern Atlantic coast schooners, the Jane Palmer, a five-master built at the Brook's yard, Harbor View, East Boston, will load at Newport News this week a maiden cargo for Boston. It is expected that she will take on about 5,000 tons at a freight rate of 60 cents a ton.

The Alaska Pacific Navigation Co., Seattle, announces that it will build a steamer for the Copper river run. The company now has three vessels, the Santa Clara, Santa Ana and Excelsior in the Copper river trade. The plans provide for a vessel 250 ft. long, 39 ft. beam and 17 ft. 6 in. deep.

Bids for the construction of the first six sections of the 1,000-ton barge canal have been invited by the department of public works of New York state. Proposals will be received at the department office on Dec. 15, 16 and 17 and the contract will be awarded as soon thereafter as the canal board can act.

An endeavor is being made in Parry Sound, Ont., to establish a local navigation company to be called the Parry Sound Steamboat Co. It is proposed to build and equip two composite steamers, fitted for passengers and package freight, and capable of steaming 16 to 18 miles an hour, and have them in operation in 1905. One steamer it is proposed to place on a route from Parry Sound to Midland and Penetanguishene and the other from Parry Sound northerly. Capt. A. Clarke is active in the promotion of the new company, and the capital is reported to be nearly all promised.



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DEC. 8, 1904.

Mr. Harvey D. Goulder, president of the Merchant Marine League of the United States, which was organized at the Union Club in Cleveland two weeks ago, spent the latter part of last week and the fore part of this week in Washington in the interests of the League. Mr. Goulder's visit to the capital was especially timely as he found the topic of American shipping to be the one subject most generally discussed on all sides and the one which will undoubtedly be a leading issue in congress this winter.

It appears that the Merchant Marine Commission, which was appointed by congress to inquire into the state of shipping in the foreign trade, found its labors so arduous that it was unable to prepare its report for the first day of the session as directed. It will, however, be presented before the holidays, probably on Dec. 19, and will be accompanied by a bill based upon the commission's observations and seeking to remedy the deplorable conditions existing in the foreign trade.

In discussing the formation of the Merchant Marine League of the United States, Mr. Goulder said that it sprang spontaneously from the loins of the middle west—that it was in fact the outgrowth of the great interest which the merchants, manufacturers and bankers of the western states had taken in the condition of the merchant marine in the oversea trade as related in the testimony before the Merchant Marine

Commission. This condition was known in a general way before the Merchant Marine Commission undertook its tour, but it required the cumulative testimony, submitted to the commission, to really bring the subject home to them. Once imparted, however, the western business men acted with their customary promptitude and the league was formed.

Mr. Goulder stated briefly that the league was wholly non-partisan in character and that its purpose was to strive by every legitimate means to upbuild the merchant marine service. On the lakes, where the league had its birth, the evidences of protection to shipping are abundantly visible. The vessels of the great lakes are exempt from world competition, first by nature, and second through the provisions of the coasting laws which preserve the trade between American ports to American ships exclusively. The result is that ships of more tonnage are flying the American flag on the great lakes than in all the oceans combined, and moreover freight is carried in them at a lower rate than is known elsewhere in the world. It is the cheapness of transportation on the great lakes, the surprising ease with which its enormous commerce, consisting mainly of iron ore, is handled, that has made the United States the great industrial nation internally that it is. The league believes that what has been done by American citizens on one body of water can be done by them on another under equal conditions. There is no reason why the United States with the largest coast line of any nation, save Russia, should not be the dominating factor in oversea trade. It is the purpose of the league to steadily and persistently promote interest in the ocean merchant marine service and to keep alive the idea that as a nation the United States is entitled to carry at least one-half of its oversea commerce in its own ships. At present it carries only about 10 per cent of its exports and imports abroad, a condition which has impressed the merchants and manufacturers of the west as possessing elements of grave danger; for in the event of war between the nations owning the ships which now carry 90 per cent of the trade of the United States by water what would become of this trade? Without ships it could not reach the foreign market; and without a foreign market to consume surplus products there is no hope of prosperity in the United States. Vast as the home market is it is not enough to keep the American people busy. The withdrawal of the foreign ships which now enjoy a practical monopoly of the oversea trade of the United States would cause commerce to back water and to bring complete ruin to the industrial and agricultural interests of the country.

Mr. Goulder also stated that the purpose of the league was to urge the establishment of a naval reserve by encouraging through suitable allowances the carrying of boys on board merchant ships where they might be thoroughly trained in seamanship and thereby made invaluable to the country in time of emergency. The world has lately had a most graphic instance of the

folly of sending untrained men to sea. It was undoubtedly panic, produced through inexperience, which caused the ships of the Russian Baltic squadron to fire upon each other in the blackness of night and incidentally to kill a number of fishermen. It is understood that the necessity for an adequate naval reserve is appreciated by the Merchant Marine Commission and that the bill which it will present to congress will contain a provision granting not only an allowance to the ship which carries a proportion of American boys but a retainer as well for the officers and crew of such ships. This is the practice of the leading maritime countries and it has resulted in keeping a floating reserve of most desirable youngsters. Encouragement is afforded to get the proper sort of boy to go to sea.

Mr. Goulder stated that the league would, of course, take the liveliest interest in any measure presented to congress for the upbuilding of the American merchant marine, but, that it was pledged to no particular form of promotion. It would, however, insist that whatever measure was submitted should be absolutely impartial in its operations and should benefit equitably all classes of vessels. The shipping trade of the United States belongs to the citizens of the United States regardless of rank or party or of any type of vessel in which their money might be invested. All are alike entitled to the provisions of any measure that may be introduced. It is quite clear that the Merchant Marine Commission appreciates this view, for it is definitely announced that all classes of vessels, high speed steamers, cargo carriers and sailing vessels are embraced in the provisions of the measure which it contemplates presenting in congress.

The league is desirous that party lines shall be completely eliminated in the consideration of the shipping question because the subject is neither political nor sectional, but national in character. It has for its object the upbuilding of a great industry, essential to the proper development of the country in times of peace and invaluable in war. It is a question upon which there should be absolutely no political division.

The commission is sifting closely the testimony in favor of discriminating duties. Mr. Goulder considers the most serious objections to the plan are these: First, that by countervailing regulations foreign nations might checkmate this plan, and second, that it will apparently require the imposition of customs duties at least for a time on imports now on the free list, which compose 46 per cent of our total imports. The proposition accordingly would precipitate a tariff discussion at the short session which might delay any action beneficial to shipping.

Mr. Goulder said in conclusion that the league would do all in its power to reserve the shipments to the Panama canal zone to the American ship.

The Canada Atlantic & Plant Line, having failed to find a suitable steamer, is considering plans for the building of a steamer somewhat larger than the Halifax.

GREAT LAKES ENGINEERING BRANCHING OUT

The Great Lakes Engineering Works of Detroit, Mich., has leased the plant at St. Clair, Mich., formerly owned by the Columbia Iron Works and will hereafter operate it. The Columbia Iron Works was established something more than three years ago but had only completed one vessel when it became practically a bankrupt. At that time it had contracts for two steamers for the Gilchrist Transportation Co., the keel of one of which had been laid and for which an abundance of steel had been purchased. A new company called the St. Clair Engineering Co. was formed about two weeks ago to take over the ship yard and it was from this new company that the Great Lakes Engineering Works assumed its lease.

Work will be immediately started at the plant upon the two Gilchrist freighters. The plans originally called for ships of 416 ft. keel and 50 ft. beam, but these have now been changed and the new vessels will be 464 ft. keel and 50 ft. beam. The steamers will have Scotch boilers and triple-expansion engines.

With the acquisition of the new ship yard at St. Clair the Great Lakes Engineering Works now has two modern ship yards and an engine works capable of turning out any class of machinery. The new plant at St. Clair has many natural advantages. The plant was designed to facilitate the economical assembly of material and the buildings are modern in every respect. It covers about 30 acres of land and the building berths launch directly into the river. Ships of any length can be accommodated there.

In taking over the two Gilchrist boats the Great Lakes Engineering Works will have nine modern freight carriers to build for next year's delivery. One of the Gilchrist boats is to be delivered next July and the other next August. Mr. Antonio C. Pessano, president and general manager of the Great Lakes Engineering Works, who negotiated the deal for the St. Clair property says that the company is figuring on building additional vessels and looks forward to an era of activity for an indefinite period.

CLOSE OF LAKE SEASON

The lake season will end, practically speaking, this week though there will be a few scattering cargoes delivered next week. The last vessel of the Steel Corporation, carrying coal, will leave Lake Erie on Friday of this week and the last vessel of the corporation, carrying ore, will leave the head of the lakes on the same day. From Lake Michigan the Steel Corporation will make shipments as late as Monday of next week. A number of the shipping docks have already ceased shipping ore. All of the lumber fleet is on its way down the lakes. During the week a few cargoes of wheat have been placed at Ft. William at 4 cents, which, of course, is an extremely attractive figure. Seventy-five cents has been paid on coal from Lake Erie ports but everyone has been making an effort to close up their business this week. The season has not, on the whole, been a profitable one for vessel owners.

Mr. Harry Coulby, president and general manager of the Pittsburg Steamship Co., sold the whaleback barges 201, 202, 111, and 127 to the Baltimore & Boston Barge Co. this week and they will be taken to the coast at the opening of navigation next year. The barges are laid up for the winter at Erie. The selling of these barges is in conformity with the policy of the Steel Corporation to dispose of its smaller vessels and replace them with new and modern craft. To this end it has offered twenty of its smaller boats for sale and has given contracts to the American Ship Building Co. for four steamers to be the largest on the great lakes. These will doubtless be followed by other orders for large ships.

BUFFALO LAUNCH CLUB

The Buffalo Launch Club is the first power launch club to be organized in the United States and is the outgrowth of an agitation which has lasted a little over a year. The club was organized last October and has now over 100 members and over sixty power launches. Its officers are Augustus C. Hager, commodore; Dr. H. B. Hubbard, vice-commodore; Roger Williams, secretary; F. S. Argus, treasurer. The first regatta of the club was held last month on the magnificent Niagara river, which is about as fine a stretch of water as is to be found anywhere for power launches. A feature of the regatta was the presentation of a silver cup to the winning launch by Mr. O. P. Letchworth of Buffalo. The course taken for the contest was a double triangle, the launches starting from the Bedell house and making a triangle up the river, returning past the starting boat for first half, then a triangle down the river, and finishing at the starting point. The Etta, which won the race, is a Buffalo boat and was run by Albert B. Schultz and E. H. Dietzer. Mr. Schultz is the owner and was much delighted with the work of the boat. At the conclusion of the race supper was served at the Bedell house and at its close Mr. O. P. Letchworth made an appropriate speech in which he presented the silver cup to the winner. Cheers were given for the Buffalo Launch Club and also for Mr. Letchworth. Following is the summary of the race:

	Time allowance.		Elapsed time.	
	Min.	Sec.	Min.	Sec.
18. Etta	8	01	27	38
19. Wasp	6	00	20	9
17. Adder	9	56	30	39
20. Viper	scratch		20	53
10. Nereid	18	13	39	11
1. Imp	37	02	1h 00	30
16. Beatrice	10	00	58	31
5. Genet	22	01	49	33
8. Steady	20	14	48	12
4. Florence	24	14	52	22
11. Esther	15	22	44	05
13. Cinch	10	00	41	44
2. Harriet A.	30	28	59	46
9. Louise L.	20	02	49	28
3. Rambler	25	20	56	30
7. Viola	20	40	52	22
6. Sunny Jim.	21	20	53	21
12. Navajo	13	56	49	54

FIRE DRILL ON BOARD SHIP

In the report on the Slocum investigation we find that "nearly all the necessary precautions in regard to fire drill and exercises safeguarding the passengers had been neglected."

Be that as it may, the question next arises as

to how many passenger carrying ships at the present day have an efficient system of fire drill. There can be fire drills and fire drills. Take our large liners for instance, the person not an actual participator could be excused for thinking that the fire drill in this class of ship would be perfect, but in a great many cases it is far from it. Of what use is a fire drill to a ship's crew notified about half a day ahead of time, that time being partly occupied finding out where their posts are, and what they are supposed to do?

In summer I had occasion to cross the Atlantic and witnessed a fire drill which, I suppose, is a type of the usual drill at sea.

One afternoon the passengers on deck leant along the rail, watching with lazy interest some of the deckhands uncoiling hose and dragging them along the decks to the hydrants, where they coupled them on. The boatswain or some other petty officer stood by giving directions, and as

he had a long shining nozzle under each arm, a few enquiries elicited the news that we were going to have fire drill in an hour or so, when all hands not on active duty would muster at their posts. At the appointed time the fire drill suddenly pealed forth an alarm, and at the first stroke of the hammer the crew, a strange medley of firemen, stewards, sailors and cooks, came swarming out of various doors to the deck. The hose were seized and the nozzles pointed over the side, as the streams of water burst forth; men manned the hand-pumps on deck, while others took up their positions with fire axes and buckets. What a magnificent display—everybody in full uniform—the coal-passers all nicely shaved and dressed, and the stewards with an even higher collar than usual, as they solemnly stood in line with buckets in their hands. No doubt, to the person arriving on deck when the bell rang, this was a very impressive sight, but could anything be more absurd in the eyes of the passenger idly watching the preparations an hour previously.

Now, if a parade like this is for the benefit of the passengers surely it would give them a greater sense of security to see an unexpected turnout, the men taking up their posts as quickly as possible in their everyday clothes, the hurried running out and coupling of the hose, and the manning of the



MR. O. P. LETCHWORTH.

pumps. The thing is not impossible and the passenger will overlook the officer, turned out by the alarm, superintending operations without the collar he didn't take time to don. This system has its drawbacks too, principally the unexpectedness of the call to the crew, but they would soon get reconciled to it, and look on it as part of the life of the "men who go down to the sea in ships." One other thing may be said in its favor, however—the crew would have to make themselves acquainted with their fire posts as soon after sailing as possible, if not before it, which they needn't do at present.

Again, it might be said that a sudden call to quarters for fire drill would needlessly alarm the passengers, but if they were notified in good time that a fire drill would take place during the voyage, any possibility of a panic on their part could be avoided. X. Y. Z.

SEEN AND HEARD ON THE LOOKOUT

It is taken for granted that many years must elapse before a navigable Panama canal may be classed with the historical "faits accomplis" of making an important geographical change. But a good beginning is half the battle, and the Panama commission has certainly commenced correctly by seeing to it at the start that the sanitary condition in the vicinity of the canal zone shall be up to this country's well-known, efficient standard.

Herewith a description of a scene on shipboard when cholera germs had been unwittingly smuggled over the side. The flush-decked British tramp steamer *Elsie* hailing from Whithy had been at anchor off Samarang, Java, about a week loading sugar destined for an Italian port. Expecting to receive enough freight by the following Monday to cause a submersion of every part of "Plimsoll's mark," the law's allow, the captain permitted those members of his crew to go ashore on Saturday afternoon who wished to avail themselves of this privilege. It has not been stated who, or how many, did go, but on Sunday morning at sunrise only two firemen were found absent. At 8 o'clock, when the crew was having breakfast, these firemen came alongside in a Javanese canoe, and after eating they brought their mattresses up on deck under the forward awning to pass this Sunday forenoon in a much needed rest after the fatigues of sight seeing in the tropics. At 9 o'clock the captain pronounced both these men dead, and at once sent a boat ashore for a doctor. The latter diagnosed it a case of cholera, and, not only had the vessel immediately fumigated, but gave orders to bury the men in 10 fathoms of water. The above is only told to illustrate the suddenness and thoroughness of a cholera attack, but having gone thus far let a description of the funeral arrangements follow. Sewed in a canvas covering, with broken firebars attached to the lower limbs to insure speedy submersion the bodies were laid on planks that had been placed across the gunwales of a large lifeboat. With two sailors on board—one to steer, and the other to guard against the corpses slipping from the plank at an inopportune moment—the boat was taken in tow by another one containing the captain, second mate, four sailors at the oars and one man in the bow with a hand lead for finding a spot above which the desired depth—10 fathoms—of tropical ocean glimmered. Upon reaching this place the captain felt that a few words expressive of his regret at the sudden death of two of his crew were expected of him—and he spoke then: "Boys, I have been thirteen years a captain, and this is the first time I have had a death occur on my ship, so I think it best to ask the second mate to say a few good words." Having thus shifted for him so uncommon a task of making a speech on the second mate's shoulders the latter suddenly became what Josephine Daskam called "agonizing self-consciousness personified." But, the captain's request being in the nature of a command, he

jumped erect in the sternsheets of the boat, and shouted: "Hats off, all hands, and commit those bodies to the deep."

The saying "surroundings influence character" is often quoted by those who describe the sailor as a rugged, valorous being. But in these instances the sea is referred to as the sailor's surroundings, and certainly not the place he more distinctly must regard as "home" during the influencing process on his character by the scenery near his front door. On steamers said "home" is generally forward, in her eyes, below, and dismal. A partition built "fore and aft," or in nautical parlance "longships," divides the space from the forward bulkhead to the vessel's stern; and the port compartment thus formed is for the firemen, while the sailors have the freedom of its counterpart to the starboard of this fence. One may find pleasure in building castles in the air; enjoy the sight of some ruined castle; read with amusement of former happenings in a feudal castle, but only disgust can express the feeling of anyone upon entering the average "forecastle." The tenants of the forecandle have to provide their own bedding—this refers to deep water craft—and the latter consists generally of what is facetiously called a "donkey's breakfast"—though a self-respecting donkey would scorn to partake of the contents of some of these sacks—and a blanket. At the termination of the voyage the mattress is generally thrown overboard, and the blanket is in most instances not deserving of a less inglorious fate.

In this connection a French writer recently advocated the enacting of laws making it compulsory for ship owners to furnish bedding, crockery, knives, forks—in short, to set the man before the mast, and his confrère behind the shovel up in housekeeping—if only the light variety. To quote this writer:

"Si l'on ne peut pas avoir ce qu'on aime, il faut aimer ce qu'on a," which is the French equivalent of the English saying: "If you cannot be comfortable, be as comfortable as you can," and comfort must now be abandoned during the time of occupancy of most forecastles. An English steamship owner once had a vessel built on board of which as much care had been taken to make the crew's quarters attractive and homelike as if the commodore of the fleet had intimated his intention of becoming the occupant. The first tenants described it as *Art*; copper fastened and *Lloyd* surveyed; and in fact, had this ship run aground near a large city some enterprising house agent might have been tempted to display a sign above the forecandle door with: "Cosy apartments to let; all modern improvements." But the ship returned to the home port without giving any agent an opportunity to advertise the attractions below the decks, and after the expiration of the first voyage a sign worded as above would have been misrepresentation of the actual conditions. In short—the home had lost its cosy appearance, though faint traces were still discernable of its having seen better days. Also—the modern improvements had been either not used or abused. And there you are, or, rather, where are you?

At Fort Totten, Willets Point, on the north shore of Long Island is the war department's unique school of torpedo planting and harbor mining. Not long ago this science of making harbors unsafe for the invader was taught at the United States engineer school, but now all boats, material and apparatus have been turned over to the commandant of the new school. At first five large rowboats, a steam launch and a naphtha launch were deemed sufficient equipment for the school, but when still, after a steam lighter had been expressly built for this purpose, those in charge complained of not being suitably fitted out, marine experts were sent to see some actual mining with a view to determining what kind of craft would be needed to most successfully do the required

work. The result was that four "torpedo planters"—steamers best described as a cross between a steam lighter and a wrecking tug—have been built for the war department, and are now at work without intermission. And should this latter assertion be deemed improbable in view of the fact that no war is impending, it may be added that the four "planters" are sent from post to post—(not synonym with "from pillar to post")—to act as floating schools of instruction in the art of making harbors scientifically dangerous for unwelcome visitors.

Each steamer carries a crew of thirteen, and only that number of men is required for the handling of these handy craft. But twenty-enlisted men are needed to practically illustrate the only safe manner of planting torpedoes, and as soon as the men at one post are deemed sufficiently enlightened on this point the school and instructors sail away to the next post to repeat the performance. In the hold of these boats at least twenty-one torpedoes—known technically as a "grand group"—can be stowed, and special machinery has been installed to facilitate the handling of heavy material.

It is to be hoped that "by their works shall ye know them" may not soon be applicable to these boats, but the heavy, so-called "A" frame, conspicuously placed before the pilot house, makes them easily distinguishable from all other types of craft along the thronged coast.

F. H.

CANADIAN SHIPPING NOTES

Commander Spain has been appointed commissioner of wrecks for the Dominion, in succession to Capt. Salmon, resigned.

The Prince Edward Island steamer Donald was wrecked in Northumberland Strait Nov. 22. Large quantities of wreckage of this steamer have been washed ashore, and so far no news has been received of the crew.

The department of marine has plans prepared for ice-breaking steamers for use on Lake Superior, which will probably be ordered early in the year and delivered about November, 1905. One of the steamers will be kept at Fort William and the other at Port Arthur.

The regulation of harbor boards and commissions will be brought up for consideration next session of the Dominion parliament, and it is understood that the bill to be introduced by the minister of marine will include a provision for the taking over of the duties of the Montreal harbor commission by the government.

The Royal Mail Steam Packet Co., which now runs its steamers between Southampton, Eng., and West Indian ports, is desirous of adding a line between West Indian ports and Canada, and is negotiating with the Dominion government in regard to a contract. The Canadian-West Indian service is at present carried on by Peckford & Black, Halifax, N. S., but the contract will expire shortly.

The admiralty court, sitting at Quebec, has decided that both the Richelieu and Ontario Navigation Co.'s steamer Canada and the Black Diamond Line steamer Captain Breton were at fault in the collision off Sorel, June 18, by which the former was sunk with the loss of five lives. The judgment directs the owners of the Captain Breton to pay one-half of the damages caused to the Canada, and the owners of the Canada to pay one-half of the damage caused to the Captain Breton. The several amounts to be ascertained by accounts to be taken by the registrar of the court. When the matter came before the wreck commissioners' court Capt. Salmon found that the Canada was entirely to blame for the collision. The minister of marine declined to endorse this decision, and directed a further inquiry. Capt. Salmon, at the time of giving judgment, announced his resignation, alleging that political influence was being used to prevent judgment being given.

CHICAGO GRAIN REPORT

Chicago, Dec. 6.—Good activity in receipts and out-movement during the past week developed steady inquiry for vessels, although practically no change in rates from week previous. Buffalo and Georgian Bay ruled at 1¾ cents basis corn, and Ogdensburg, etc., continuing at 2½ cents oats and 3¼ cents corn. P. H. Fleming & Co. report that late loading of cargoes for Buffalo is figured around 2½ cents.

The season is terminating rather more quietly than usual. Suitable insurance arrangements have been offered by underwriters for late season movement but it looks as if the shipping demand will not be broad enough to realize any extensive chartering. Fresh quality of corn overcomes the "hold at destination" inquiry and incidentally the shippers are discouraged in taking even ordinary chances for reasonably prompt handling of their grain because of the peculiar scarcity in the car situation east of Buffalo. It is expected, however, that the last-mentioned obstacle will be cleared up very shortly, though it will be noted that in the meantime there is a very heavy rail movement out of Chicago—aggregating closely around 2,000,000 bu. grain during the past week.

Shipments of the week were thus distributed: All rail lines 260,000 bu. wheat, 1,043,000 bu. corn, 570,000 bu. oats, 100,000 bu. barley; by lake to Buffalo and other American ports, 267,000 bu. wheat, 1,150,000 bu. corn, 161,000 bu. oats; by lake to Canada ports, 103,000 bu. corn and 100,000 bu. oats.

Lake and rail shipments:

	This week.	Last week.	Same week last year.
Wheat	526,680	395,093	1,646,524
Corn	2,302,253	913,231	1,432,625
Oats	826,009	552,990	1,117,910
	3,653,942	1,861,314	4,197,059
	Shipments since Jan. 1, 1904.		Same time last year.
Wheat	16,714,917		23,633,189
Corn	68,688,458		88,409,307
Oats	43,179,852		61,056,487
	128,583,227		173,098,975

Stocks of grain in elevators:

	This week.	Last week.	Same week last year.
Wheat	3,867,000	3,930,000	5,354,000
Corn	1,328,000	1,623,000	3,294,000
Oats	9,104,000	9,055,000	3,121,000
Rye	443,000	429,000	433,000
	14,742,000	15,037,000	12,202,000

AROUND THE GREAT LAKES

Ice is rapidly forming in the channels in the upper lakes and is proving a serious barrier to the smaller vessels. Clear blue ice 5 in. thick is reported in Mud Lake and also in Lake St. Clair.

The yard of the Superior Shipbuilding Co. is adding men in order to care for the new ship to be constructed there, and repairs and reconstruction is under way, on a scale necessary for the work. Superior looks for a revival of business for the winter on account of this work.

The Erie & Western Transportation Co. has decided to name the sister ship of the Muncy now building at the yard of the Great Lakes Engineering Works, Detroit, the Delaware. The steamer building at the Cleveland yard of the American Ship Building Co. will be named Juniata.

Turtle Island, noted for a quarter of a century as the site of a lighthouse near the Toledo harbor entrance, was sold

this week by the collector of customs to the Craig Ship Building Co., Toledo, for \$1,000. The island covers three acres and lies in Lake Erie 12 miles from Toledo.

The Anchor Line steamer, building at the Cleveland yard of the American Ship Building Co., will be launched on Dec. 17 and the 500-ft. Tomlinson freighter, building at the Lorain yard, will be launched on Dec. 15. The keels for these vessels were not laid until nearly the last week in October.

The schooner Spademan owned by M. Sicken, Marine City, Mich., became fastened in the ice in Lake St. Clair while trying to make the mouth of the Thames river en route to Chatham. She grounded later in an endeavor to break through. She had a cargo of 17,000 bushels of wheat consigned to the Canadian Milling Co., Chatham, Ont.

The items for river and harbor improvements and aids to navigation included in the estimates sent to congress by the treasury department this week are as follows: Improving Detroit river from Detroit to Lake Erie, \$450,000; improving middle and west Nebish channels, St. Mary's river, \$500,000; enlarging dwelling Wind Mill Point, \$5,000; protecting foundations of lights along Detroit river, \$5,000; dwelling at Grosse Isle light, \$5,000; establishing range lights at Rock Harbor, \$21,000; survey for station at Rock of Ages, \$25,000; moving station at Portage Lake, \$55,000; moving light station from Eagle river to Sand Hills, \$38,000; dwelling Portage Lake station, \$3,500; establishing light station Little Gull island, \$20,000; light station Point Aux Barques, \$32,000; additional land adjoining Old Mackinaw light station, \$400; double dwelling Frankfort Pierhead light stations, \$6,500; enlarging 20-ft. channel, Isle Aux Peches range, \$18,000; dwelling Point Iroquoise, \$5,000; dwelling Tawas light station, \$5,000; lens for Detour light station, \$4,500.

PERSONAL

In a thoroughly practical way no man is better appreciated along the whole chain of great lakes than Mr. Edward Smith, president and general manager of the Great Lakes Towing Co., and there is no position dealing with the practical affairs of lake commerce that Mr. Smith could not fill with rare ability. Mr. Harry Coulby, now president and general manager of the Pittsburg Steamship Co., appreciated Mr. Smith's counsel greatly when he was managing the towing company and Mr. Smith was on the board of directors. They practically worked hand in hand at all times and brought the affairs of the company from a state of chaos into harmony and from a crippled financial state into one of power. The results are quite apparent from the fact that dividends are being resumed by the company.

OBITUARY

John Bertram of the Bertram Ship Building & Engine Works, Toronto, Canada, died recently. He had been identified with Canadian interests for the past 49 years. For six years he represented Peterboro in the house of commons. He was also a member of the Ontario Forestry Commission and was very conscientious in the performance of public duties.

MISCELLANEOUS SUBJECTS

It is reported that the Toyo Kisen Kaisha will build two 15,000-ton freight and passenger steamers at Nagasaki for its San Francisco and oriental trade. It is believed that the Mitsu Bishi Co. will do the work.

At the annual meeting of the board of directors of the Navy League of the United States, held Nov. 17, 1904, the following general officers were elected: Benjamin F. Tracy, president; William McAdoo, vice-president; Allen S. Apgar,

treasurer; Robert S. Sloan, secretary; George H. Owen, assistant secretary; Herbert L. Satterlee, general counsel.

The steamer Zepora was launched last week from the ship yard of Crawford & Reid, Tacoma, Wash. The new steamer is about the same size as the Mainlander, recently wrecked, and is being constructed for the International Fisheries Co. Miss Ethel Chaplin, niece of President H. E. Poole of the fisheries company, named the vessel.

The steamer Venture of Victoria, B. C., has been purchased by the owners of wrecked steamer Boscountz, to take the place of that steamer on the run between Victoria and northern B. C. ports. The Venture was built at Victoria in 1902, is a screw steamer, and has engines of 19 H. P. Her dimensions are: length, 153.4 ft.; breadth, 36.2 ft.; depth, 9.5 ft.; tonnage—gross, 655 tons; register, 409 tons.

The Canadian Pacific railroad, it is reported, is considering the advisability of building a steamer in the United States to run between Seattle, or some other United States port on Puget Sound, and Alaskan ports, in order to enable the company to compete with United States steamers, which are now enabled to call at Victoria and Vancouver, B. C., on their way to and from Alaska.

The six-masted schooner Ruth E. Merrill was launched last week from the yard of Percy & Small, Bath, Me., in the presence of a large audience. The Merrill was built for J. S. Winslow & Co., Portland, Me., and is the second largest six-master in existence. She is 310 ft. long, 48 ft. beam and 23 ft. deep. The schooner was named in honor of Miss Ruth E. Merrill, who also christened the vessel.

It is announced that the Monongahela Consolidated Coal & Coke Co. of Pittsburg has purchased from the St. Louis & Mississippi Valley Transportation Co. the steamers S. H. Clarke, Hoxie and Lowrie and over thirty barges. Two of the steamers and about twenty of the barges will continue in the grain carrying service between St. Louis and New Orleans. The remainder of the vessels will be utilized for the increasing river traffic and steel and wire products. The occasion of the deal was largely the closing of a contract with the American Steel & Wire Co. to handle the supplies sent from the Pittsburg mills of the company to its warehouses at St. Louis.

It is reported that the Eastern Steamship Co. of Bangor, Me., intends to put two new steamers equipped with turbines on its Bangor & Boston division and on the Boston & Eastport line. The new steamers will be practically duplicates in outward appearance of the steamer Calvin Austin. It is understood that Mr. Charles Hanscom of the Eastern Ship Building Co., New London, Conn., is preparing the plans. Mr. J. T. Morse, the treasurer of the Eastern Steamship Co., made an inspection several months ago of the turbine steamers now operating on the Clyde and in the English channel and was favorably impressed with them. It is not known what make of turbine will be installed, but probably the Parsons will be used.

During the calendar year of 1904 the construction department of the Baltimore & Ohio railroad has changed 29.35 miles of track, built 55.4 miles of new road, and 86.35 miles of second track. This work includes the construction of the Point Pleasant, Buckhannon & Tygart's Valley railroad, from Lemley Junction to Buckhannon, W. Va., a distance of 12.6 miles; the second track between New Castle Junction and Struthers, O., a distance of 14.2 miles; double track from Haselton to Niles, O., a distance of 8.5 miles; from Niles to Cuyahoga Falls, an entirely new double track line has been built, a distance of 42.8 miles, and changes of alignment and grades have been made and second track constructed from Flushing, O., to Fairport, O., a distance of 11.27 miles, and from Barton to Bridgeport, O., a distance of 9.15 miles. All of this work is practically completed, although some of it will not be in use before Jan. 1. It has not as yet been decided what construction work will be done during the next year.

HIGH SPEED GASOLINE LAUNCHES

One of the interesting papers read at the recent meeting of the Society of Naval Architects & Marine Engineers in New York was Mr. Clinton H. Crane's paper upon "High Speed Gasoline Launches." It received a great deal of comment at the time and Mr. Crane was highly complimented upon the performance. The paper was as follows:

"The application of internal combustion engines to the propulsion of launches is by no means a novelty, but great public attention has of late been attracted to the subject owing to the high speeds obtained by a certain number of small launches driven by engines of this type.

"It might have been expected that the makers of marine gasoline engines would have developed a light engine from the heavy slow moving engine which has been on the market for years. However, the demand for a light weight motor has so far been met only by automobile makers, although marine engine builders are now beginning to take up the matter.

"The older makes of motors weighed from 80 to 200 lbs. per brake horse power, and in sizes up to 75 H. P. have proved extremely satisfactory in all sorts of working vessels. Engines of this type manufactured by the Pennsylvania Iron Works (Globe motor), Standard Motor Construction Co., and other well known makes have run satisfactorily day in and day out with practically no attention or trouble.

"The manufacturers of automobiles have been the first to realize the possibility of a light weight motor, and have been able to reduce the weight per horse power to between 8 and 20 lbs. per brake horse power in the best practice of today. To have divided the weight per H. P. by ten is certainly a remarkable achievement.

"The reduction of weight has been accomplished in three ways:

- "1. The elimination of unnecessary material.
- "2. The employment of higher grade material.
- "3. The use of higher piston speeds.

"The higher piston speed has necessitated modifications of design in four particulars—mechanical balance, ignition, lubrication and cooling. All four of these difficulties have been met with entire success in the engines used by automobiles. The slight change of conditions from an automobile to a boat has given rise to unforeseen troubles with ignition and lubrication. The ignition troubles have been principally due to water affecting the insulation of the electrical gear for igniting the gases; and this, by care in installation, can be readily corrected.

"The troubles with lubrication arise from the fact that in a boat the engine driving the screw is ordinarily set at an incline, the result being that the after cylinders and bearings receive too much oil, the forward too little. It may not be generally known that in a gas engine too much oil is as bad as too little. Several systems of forced lubrication have been designed to meet this trouble, with more or less success, but the adjustment of the oil supply is of such delicacy that I think it safe to say that most people can trace their troubles in high speed motors to this alone. During the past year we have designed a dozen launches to be driven with light weight automobile engines of various makes, and the only troubles experienced have been with one or the other of these difficulties.

"The extremely light weight per H. P. of the modern gasoline engines has presented the possibility of attaining higher speeds on the water than heretofore. The past year, though not yet having realized this possibility in point of actual speed, has brought us to a point in relative speed never before attained to my knowledge. I present to the society as a type of this high speed automobile launch the Vingt-et-un

II., designed by my firm. This boat on public performance has shown a speed of over 22 knots per hour.

"To attain, for her length, a speed relative to this Turbinia would have had to make 35.5 knots an hour instead of 32.76, as is credited her by report. To attain for their length a speed relative to this, torpedo boats would have had to make 44 knots an hour instead of 30 knots as actually obtained. From the fact that Vingt-et-un has attained such a high point on the speed curve I feel that the record of a progressive trial run last September on this launch over a measured mile would be of interest to the society.

"Vingt-et-un's principal dimensions are as follows:

HULL.

"L. W. L., 38 ft. 9 in.; beam, 4 ft. 7 in.; draught of hull mean, 11 in.; wetted surface on trial including struts, rudder, shafting, etc., 146.3 sq. ft.; displacement on trial, 3,850 lbs.

ENGINES.

"Smith & Mabley Simplex four cylinders; diameter cylinders, 6½ in.; stroke, 6¾ in.; revolutions, full speed, 850; piston speed, 956; brake horse power full speed, 68.

TRIAL TRIP OBSERVATIONS.

Run.	Time over measured statute mile.	Average revolutions
1 Against tide	7 mins. 17 secs.	380
2 With tide	4 mins. 45.25 secs.	380
3 Against tide	6 mins. 7.25 secs.	428
4 With tide	4 mins. 34.35 secs.	425
5 Against tide	3 mins. 31 secs.	650
6 With tide	2 mins. 49 secs.	690
7 Against tide	3 mins. 7 secs.	740
8 With tide	Watch stopped by accident	745
9 Against tide	2 mins. 38 secs.	850
10 With tide	2 mins. 20 secs.	835
11 Against tide	3 mins. 10 secs.	728
12 With tide	3 mins. 2 secs.	696
13 Run spoiled by driftwood getting on stem.		
14 Against tide	4 mins. 1 sec.	564
15 With tide	3 mins. 30 secs.	597

"In selecting a course to run this trial, owing to the small size of the boat, absolutely smooth water was a necessity. This was especially true with a gasoline motor, as even a small amount of spray on the electrical apparatus for ignition is sufficient to impair the regularity of the engines. It was not possible to count the revolutions without removing the forward part of the engine cover. We therefore chose a measured mile course on the Harlem river laid out by the engineering department of the New York University, quite recognizing the disadvantages due to shallow water (an average of about 16 ft.) and a strong tide (a maximum of nearly two knots). One man was placed at the forward end of the engine with stop-watch and revolution counter to note revolutions, the helmsman taking the times over the course with and against the tide. The difficulties of observation were increased by the large amount of floating wood which had to be dodged.

"Runs were made with and against the tide with engine speeds between 380 revolutions and 850. It was found impossible to throttle the engine to a lower speed than 380 and have it run with sufficient regularity to make the result of any value. The engine had before installation been tested on the brake for a maximum power at varying revolutions. This brake horse power curve gave us a value of 68 H. P. at 850 revolutions. The information which we principally desired to obtain was the rate of increase of power at the higher points of the curve not already investigated. The speeds were reduced from statute miles per hour to nautical miles per hour. The speed revolution curve was obtained by laying in all the spots with and against the tide, and figuring the tidal correction for each of runs separately on the assumption that for a small variation in revolutions the speed varied with the revolutions.

"In constructing the effective thrust curve I made the fol-

lowing assumption, based on the well known laws of screw propellers, i. e.,

$$TaR^2 \times (S \div C.)$$

Where T = effective thrust.

R = revolutions of propeller.

S = apparent slip.

C = a constant dependent on wake factor and on the shape of screw.

"I assumed this constant to be 5, allowing for a wake per cent of 3, and a screw correction of 2. The formula then becoming $TaR^2 \times (S + 5)$.

"Undoubtedly there is variation in this constant (C), but the curves of effective thrust and brake horse power have been deduced on this assumption, and from the effective thrust curve the curve of the variation of power with speed was readily obtained.

"The slip curves, and in fact all the curves, seem to agree in character very closely with the known curves of torpedo boat practice, and within the limit of the observation the increased speed was accompanied by no apparent change of rate in the increase of power after 14 knots was reached. On this progressive trial the boat was carrying about 350 lbs. more weight than her usual racing condition, due to the man on board and some extra tools and gasoline. During the summer over several courses a mean speed of 22 knots has been obtained at an unknown number of revolutions, as in this case it was impossible, owing to the spray, to have a man in a position to count the motor.

"Vingt-et-un has been able to maintain this high speed through, for her, very rough water. In the race for the gold challenge cup she won the last two races on the Hudson in a strong wind blowing up the river against an ebb tide, without her speed suffering appreciably, as will be seen by the official figures. The course was given out by the officials as 16 nautical miles. By actual measurement on the chart it was $15\frac{1}{2}$ nautical miles. The mean of the speeds up and down the river the second day was 21.16 knots, and the third day was 20.27 knots.

"It seems to me that in addition to the model experiments in Washington there might be considerable advantage in trying small models of the proposed vessels driven by their own power over rough water courses, as a boat's ability to maintain her speed in rough water is vastly more important than speed in absolutely still water.

"The boat with all her equipment and a crew of two, in racing condition, with fuel for 50 miles at full speed, weighs 51 lbs. per H. P. The engines run with absolute regularity, maintaining their high speed for hours at a time with very little attention from the engineer. The regularity of the running is particularly apparent in comparison with steam driven craft, where irregular firing and dirty fires make tremendous variations in the results."

TUG RELIANCE CASE SETTLED

In September, 1903, the tug Reliance, owned by the Midland Towing Co., James Playfair, manager, burned near Sprague, Georgian bay, and sank in 15 ft. of water. Afterwards the tug was raised and taken to Midland, where a survey was held by John Weisbeck, Buffalo, representing the underwriters, and Thomas Donnelly, Kingston, representing the owners. The surveyors agreed on the damages being appraised at \$21,500, and on this report three of the insurance companies paid their proportion of the loss. The other three companies, the Western Assurance, the British America, and the Scottish Union and National, objected to the award of the surveyors. The last named company notified the owners of the tug that they were satisfied with the amount of award, but refrained from paying at the request of the other companies interested.

The owners of the tug were offered different amounts in settlement, but refused to take any less than the award. Suits were commenced against the three companies, and the cases were set down for hearing before Chancellor Boyd at Barrie, recently. Messrs. McCarthy, Osler and Harcourt, on the part of the defendants, consented to judgment and costs in all three cases before the hearing.

The costs will be very heavy as four special inspections were made by the underwriters, in all of which Capt. Donnelly represented the owners. Evidence was also taken on two occasions before Col. Bruce, commissioner, at Buffalo. D. S. Storey, solicitor of the Midland company, represented the owners, assisted by Mr. Hodgins, K. C., of McMurrich and Hodgins, Toronto.

ON THE MERCHANT MARINE LEAGUE

Editor Marine Review: I notice by the papers that you were present at a meeting of a large number of the leading citizens of Cleveland on last Monday evening participating in the celebration of the birth of what was named, "The Merchant Marine League of the United States," and having for its object the restoration of the ocean merchant marine. I believe such an advance step just at this time cannot fail to exercise a marked influence along the line of an enterprise of the most vital importance and now before the American people awaiting a verdict from congress, soon to convene. The meeting was all the more significant in having taken place in an inland city and state. Thanks to the broadmindedness of its originators and promoters who can see in such restoration national benefits not confined to any section or class, but permeating through every fiber of the warp and woof of this entire country, calling into operation the mighty network of the rapidly growing inland transportation facilities which may in the near future develop signs of congestion, and to feel the need of some avenue through which the product of our energy applied to our natural advantages and grasping the opportunity now before us in the way of an efficient merchant marine on the seas, and to which our enterprising and patriotic citizens are giving their careful attention and support to the end that continued prosperity will be assured.

Very respectfully,

JAMES STONE.

Washington, D. C., Dec. 3.

STEAMERS FOR SACRAMENTO RIVER FRUIT TRADE

The Santa Fe Railway Co. intends to build three stern-wheel steamers to compete with the Southern Pacific railway for the fruit trade on the Sacramento river, Cal. Two of them will be of very large size and will be used in hauling fruit from Sacramento and other river towns to Antioch, at the junction of the Sacramento and San Joaquin rivers. The Santa Fe company will extend the Antioch wharf and erect large warehouses. Eight hundred and fifty cars of green fruit were shipped from Sacramento by the Santa Fe last year and the business will be much larger during the coming year. The three vessels will be ready at the opening of the fruit season.

Moran Bros. Co. of Seattle, Wash., have drawn plans for two steamers for the North Western Commercial Co. of Seattle. The plans provide for a steamer 275 ft. long, 45 ft. beam and 20 ft. deep. Accommodations will be provided for about 160 first cabin passengers and 200 steerage passengers.

Three of the fourteen steam shovels that the Bucyrus Co. of South Milwaukee contracted to furnish the government for work on the Panama canal have been completed and shipped.

MERCHANT MARINE COMMISSION HEARINGS

At the recent meeting of the navy and post office departments before the Merchant Marine Commission in Washington, Rear-Admiral Luce read a letter recently submitted by him to Secretary Morton, to be laid before the commission, in which he referred to the mutual dependence of the merchant marine and the navy. He asserted that the money paid foreign carriers of products of this country goes to enrich the countries with which the United States may some day be at war, thereby indirectly aiding the navies of those countries and their naval reserves at the expense of our own. He favored subsidies as the means of building up the merchant marine.

Declaring that it was through nursing a particular British industry—the carrying trade—that England owes her supremacy of the seas today, Capt. Mahan said that American shipping should be encouraged to come into existence and to compete with the carrying trade of the world. He uttered a note of warning, however, concerning the development of a force upon which the United States could expect something but from which, he said, too much should not be expected. He admitted that the value of a merchant marine as an auxiliary to the navy in time of war would be immense. He suggested that one way to form the nucleus of a large, trained naval service would be to develop the foreign shipping trade and after that to reserve it to American seamen.

Rear-Admiral Harrington favored the building of steel ships, and said that the laws of the United States should be changed so as to permit the merchants of this country to run American ships as cheaply as foreign owners can run them. Just as the controlling principle in the composition and construction of the American navy is determined by the constitution of foreign fleets, he said, just so in commercial rivalry this country must abandon means which have failed and seek new implements which will meet the measures of foreign competitors. He declared that the merchant officers of the United States are not all that can be desired in the matter of competence and that as regards education and training they do not compare favorably with foreign merchant officers.

Before receiving the views of any of the officials named, Representative Parker of New Jersey spoke briefly, contending that in order to get Americans to go to sea better wages must be offered and that there should be a graded service with promotion. He favored following the British naval reserve act, avoiding its mistakes.

Secretary Morton followed. His views of the relation of the government to the merchant marine in the foreign trade was that it was simply a question of competition. He said that in order to build up a large American shipping interest in this country it will be necessary to meet the competition of other nations. It will further be necessary, he declared, to in some way recognize the mail contracts, the subsidies, the bonuses and the premiums of Germany, England and other countries. The American owner of seagoing craft and the American sailor, he said, must be given equality in all respects if they are not to be handicapped by foreign competition. It was his idea that all ships built in this country should be constructed in accordance with plans approved by the navy department, so that in case of war the department could make good and efficient use of them. He added that he was not sure, but that the seamen also should have a naval training.

Capt. Usher, speaking for the bureau of navigation of the navy, said that the navy department is not disposed to suggest any plan which looked to the encouragement of the merchant marine through subsidies from speed, mileage or mail-carrying vessels, but was disposed to favor naval premiums upon ships to be built and which fulfill certain naval requirements.

Eugene T. Chamberlain, commissioner of navigation, treasury department, submitted a series of tables bearing on the

commerce of the world. From these he showed that the exports of the United States largely exceeded the imports, and said that the imposition of discriminating duties would be liable to result disastrously to the trade of this country through retaliatory action by the countries affected. The application of discriminating duties, he further declared, would not only abolish the free list, but if made general would also necessitate the abrogation of the favored-nation clause in all the treaties, and if confined to the indirect voyage it would affect three-fourths of such treaties.

Replying to Senator Gallinger, Mr. Chamberlain said he favored the granting of subsidies as a proposition of national defense.

Gen. Shallenberger's testimony concluded the hearing. He did not believe, he said, a mail service act alone would benefit more than a limited portion of the American shipping. There must be some legislative action which will give to this country the selection of at least one line of steamers to each of the principal ports of the world. He declared that the United States was not on an equality with the shipping of other countries in the matter of protection in construction, operation or their personnel. He said it was an imperative duty at this time to extend the United States ocean mail service, because being confronted now by the English on the Atlantic it will otherwise be difficult to keep the mails in American vessels.

AUTO BOAT TOGO

The accompanying illustration shows the auto boat Togo which has been in commission in Geneva Lake, Wis., during the past summer. The auto boat Togo is 27 ft. over all and



AUTO BOAT TOGO.

4 ft. 3 in. beam and her power is furnished by a high-speed automobile gasoline motor developing 14 B. H. P. at 14 revolutions. The Togo is the product of the Palmer Boat Co., Highland Park, Ill.

Many Japanese fishermen, driven out of Russian waters, are now fishing in American waters off the Aleutian Islands. Capt. Weaver of the steamer Victoria from Nome reports that he saw several Japanese boats off Dutch Harbor and that other Japanese vessels are expected there. The Japanese are catching humpbacked salmon for the home market. It is not unlikely that a fleet of 800 or more Japanese fishing vessels will be in Aleutian waters next year unless congress prohibits them. The Alaska salmon canners pay a tax for carrying on their business and do not like free fishing by Japanese in American waters. Japan bids fair to be a good market for Alaskan salmon, but the Japanese, if allowed free fishing, will close the market to Americans. Several thousands of Japanese have fished for many years in Russian waters.

BRITISH RULES FOR FOREIGN SHIPS

Interesting evidence has been given before the select committee of the house of commons, which is considering how far British requirements may be applied to foreign vessels trading to and from British ports, by Capt. Whall, principal officer of the Board of Trade of Leith. Capt. Whall, referring to the ventilation on board foreign ships, said that this matter had just been taken up in the Scotch east coast district and 251 vessels had been warned, thirty-three of these having complied with requirements. There was no friction over the question. All that was asked was that the fitting-up should be done in the countries which the vessels came from. Though this was a new departure foreign vessels did not object. As far as his observation went the life-saving appliances on board foreign ships compared favorably with those on board British ships, and there was no ground for interference. Most of the vessels coming to the east coast of Scotland were small craft, but as a rule on the cargo-traders the appliances were in fair order and efficient. With regard to the transfer of ships from the British flag to foreign flags he mentioned that two years ago the Leith harbor authorities asked the Board of Trade whether they could give any information about a Russian vessel which appeared to be 300 tons less than when previously sailing under the British flag. He could not see the ship as it went away soon, but since that time there had been cases of great discrepancy. There was a Greek ship at Aberdeen which sailed 148 tons less than when a British ship. There was the case of a Spanish vessel now 214 tons less than when British. Another ship on the Russian register at 867 tons sailed as a British ship of 1,137 tons. In the case of a Genoese vessel the discrepancy was 175 tons, and another ship which when built was 2,345 tons, and after alterations 3,107 tons, was registered as a Greek vessel at 2,023. A Danish vessel of 961 tons became one of 741 under the Russian colors. The discrepancy was due to the manner of applying rules, and it was generally very greatly to the advantage of foreign ships. Russia seemed to be the greatest sinner in this matter. With regard to overloading they could not prosecute a foreigner under the present law. There was an inspection fee of £2, so that an overlaid foreign ship simply discharged and paid that fee. It was difficult to stop foreign ships that were overlaid, but if there was a surveyor present in every port he would have the power to stop them. It would not do to stop them for the sake of a couple of inches or so, but in any case the surveyor had to make a fairly exhaustive survey before he could say anything. It would be impossible to put foreigners on the same footing as British ships, unless we insisted on them having a disc. The load-line tables were issued in 1895, when ships were very different from what they are now, but the Board of Trade had issued memoranda since then which covered most of the cases. Referring to the new German load-line regulations, he said he knew of one German vessel of about 1,100 tons. The free-board of that vessel was 8 in. less than it would have been under British rules. He observed that from the naval architect's point of view, German rules were more scientific than ours. If there was a universal load-line he thought it would meet with acceptance in most countries. He thought we would be likely to get that after insisting on foreign vessels in the first place sticking to our rules. He said he had no doubt that foreign vessels in the district he represented had a distinct advantage over British vessels in loading. He had no evidence to give as to whether the smaller free-board of foreign vessels was conducive to serious loss or damage. The German vessel to which he had referred was the first case he had before him of a foreign vessel being marked by a foreign corporation. Mr. Runciman asked if there was proof that the undertakings of foreign

vessels as to ventilation were carried out in their own countries. Capt. Whall said they had seen the vessels again. The ships he had referred to might not go back to Leith, but a list of them was sent to the Board of Trade so that if they came back to Britain at all it would be seen whether they had complied with the requirements in this direction. No friction had arisen at Leith in connection with this matter. The foreigners acquiesced in the necessity for such rules. Any timber-laden vessel, British or foreign, having a deck cargo of more than 3 ft. in water was prosecuted by the customs as a matter of course. Prosecutions for any other form of overloading were confined to British vessels. He thought overloading would be stopped if foreigners were rendered liable to prosecution in the same way as British vessels.

MOSHER WATER TUBE BOILERS

Among the contracts recently secured by the Mosher Water Tube Boiler Co., No. 1 Broadway, New York are two new boilers for the steam yacht *Tarantula*, owned by Mr. William K. Vanderbilt, Jr., to replace the two Yarrow boilers originally furnished with the boat. It will be of interest to note the comparative difference in the weight, heating and grate surface of these two types of boilers, and it will further be seen that, notwithstanding the capacity of the Mosher boilers is nearly double that in the original Yarrow boilers, yet the Mosher boilers will go in the same space, and will actually weigh less. The exact weight of the Yarrow boilers (being officially given), with water and fittings is 11 tons each, while the weight of the Mosher boilers with water and all fittings is 10.95 tons each, notwithstanding the Mosher boilers will each have 2,810 sq. ft. of heating surface, and 60 sq. ft. of grate surface as against 1,840 sq. ft. of heating surface, and 32.5 sq. ft. of grate surface in the Yarrow boilers, thus showing the extreme light weight and compactness of the Mosher boilers in comparison with one of the leading types of torpedo boat boilers.

The extreme lightness and compactness of the Mosher boilers is further exemplified by the official test recently made by the United States government on the United States monitor *Florida* in comparison with three sister vessels, built from the same design and identical in every respect except the boilers. The *Wyoming*, fitted with Babcock & Wilcox boilers, the *Arkansas* fitted with Thornycroft boilers, the *Nevada*, fitted with Niclausse boilers, and the *Florida* fitted with Mosher boilers. In the efficiency test, the nearest competitor to the Mosher boilers, burned over 23 per cent more coal per horse power per hour. The relative weights of the boilers complete with all fittings and water to working level were as follows: Thornycroft boilers, with only 9,351 sq. ft. of heating surface and 198 sq. ft. of grate surface, weight 84.84 tons. Babcock & Wilcox boilers with 8,800 sq. ft. of heating surface and 200 sq. ft. of grate surface, weight 89.43 tons. The Niclausse boilers with 8,874 sq. ft. of heating surface and 220 sq. ft. of grate surface, weight 111.74 tons. Mosher boilers, with 9,600 sq. ft. of heating surface, and 240 sq. ft. of grate surface, weight 64 tons.

STEAM SCHOONER MANAGERS' ASSOCIATION

Robert Dollar, W. G. Tibbetts, Thomas Pollard, George D. Gray, J. R. Hanify, Robert H. S. Wayne and C. R. Johnson, well known ship owners, have filed articles of incorporation of the Steam Schooner Managers' Association. The purpose of the association is "to advance the interests of its members and benefit the Pacific coast shipping trade; to control and manage the business of shipping, employing and paying seamen and other employes and doing the general business of a shipping office." All the incorporators are residents of San Francisco or neighboring towns.

LIVERPOOL SHIPPING LETTER

Liverpool, Nov. 28.—I regret that it is not possible for me to announce in this letter that the North Atlantic rate war is at an end. It is true that an understanding has been arrived at between the Cunard company and the German lines, but trouble has since arisen between the former company and the White Star Line through which the conflict is being prolonged. Happily the negotiations are pursuing a peaceable course and I have the best authority for saying that there is now a prospect of the differences which have stood in the way of an all round settlement, being satisfactorily arranged. The following account of the present position of the North Atlantic trade by a Liverpool shipping authority very accurately summarizes the position: Considerable misapprehension exists as to the exact position which the North Atlantic passenger rate war has assumed, and the causes which have been operative in creating the present position. In the first place, the London conference resulted in a probable basis of settlement being arrived at, and this was followed by the Berlin meeting at which the preliminary articles of agreement were discussed, and after some modification, were tacitly accepted by the belligerents. But this agreement had reference only to the principal parties concerned, i. e., the Cunard Line and the German companies, and the points agreed to were the definite delimitation of the spheres of operation of the respective lines. In short, the Cunard Line signified their intention of joining, under satisfactory conditions, the North Atlantic passenger conference. Scandinavia was to be reserved to British enterprise, the German lines agreed to withdraw from British steerage business, and a similar policy of give and take was adopted with regard to the Hungarian emigration business. But before this section of the agreement could be made absolute, the Hungarian authorities, as signatories to the Cunard contract, had to be consulted. This phase of the subject is even now subjudice. Doubtless the matter will be satisfactorily adjusted, and this view was evidently adopted by the German lines, for they regarded the struggle as practically settled, and authorized the notification that on Nov. 12 their indemnity to the British lines, which had cut their rates to fight the Cunard, ceased. In these circumstances, the lines which had been opposed to the Cunard, of which the White Star Line was the head, desired to raise their rates at once, and a hurried meeting was convened at Liverpool on Nov. 14 to consider the position, and take the requisite steps for raising rates. At this meeting there were present representatives of the White Star, Dominion, Allan, Anchor, Canadian Pacific railway and Cunard Line, but the rates were not raised. The Cunard principals were away negotiating the settlement of the Hungarian question, and they decided that before the peace decision could be given effect to there were other points of difference still to be settled. It is an old story now that friction with the Germans was not the only, or perhaps the first cause of the Cunard withdrawal from the North Atlantic passenger conference. That was originally determined by the action of the White Star Line in introducing Friday sailings from Liverpool to New York, and overshadowing with their big 20,000-ton boats the smaller section of the Cunard fleet sailing on the Saturday. What the Cunard company then asked for was a differential arrangement in favor of their Umbria and Etruria. This was refused, and hence a rift in the lute. This action of the White Star brought about, no doubt, by the rapid pace at which they had increased their tonnage, was also felt by other lines. It will no doubt be considered as quite the correct thing for the Cunard company to have this material point of difference cleared away before crying peace when there is no peace. In this connection it is interesting to note that the Cunard company are not alone in their protest against White Star methods. The Allan Line have suffered severely by the action of the Dominion Line, which is run under the aegis of the White Star, in carrying only

second and third class passengers on board two of their steamers, the Kensington and Southwark. The contention of the suffering lines is that in these vessels an attempt has been made to secure custom by offering passengers first class facilities at second class rates. A third vessel, formerly engaged in the New York trade, the Germanic, is to be renamed the Ottawa, and is to be put into the Canadian trade. It is feared that in this case also an attempt will be made to violate the spirit, if not the letter, of the agreement between the various lines concerned. It is perhaps a little difficult to understand why the Allan and other lines have accepted the position, and merely contented themselves with a protest. Probably the rate war has prevented the settlement of these minor points of difference, but now that the Cunard have stuck out for their differential arrangement in the case of cabin bookings for the Umbria and Etruria, which will enable them to charge lower rates, and so remove the adverse handicap due to their smaller size, it is possible that they will not be alone in their insistence upon a thorough clearing of the atmosphere before steerage rates are allowed to revert to their normal level. It is stated that the White Star Line have given assurances that this differential arrangement will be allowed. But even then there is the question of the Kensington and Southwark and Ottawa to be considered, and it is generally felt, especially in shipping circles, that it is far the wiser policy to carry on the war a little longer in the hope of definitely settling the points in dispute, than to accept an alleged peace which might at any moment change into a resumption of hostilities. Just how and when the rate war will cease therefore, it is impossible to say, but it is not thought that the Cunard Line will give way on the points contended for. Lord Inverclyde has evidently laid down a basis of settlement, the minimum the Cunard company can accept, and does not intend to depart from it.

Notices have been issued by the London county council intimating that application will be made to parliament in the ensuing session for leave to bring in a bill constituting and incorporating a commission for the administration, regulation and control of the port of London, defining the limits of the port to which the bill is to apply, transferring to the commission the property, powers, etc., of the Thames conservators, and authorizing the Board of Trade by provisional order to reconstitute the Thames conservators. Authority will be asked for to empower the commission on terms, etc., defined by the measure to take over and carry on and to provide for vesting in the commission the undertakings of the London & India docks, the Surrey Commercial dock, and the Millwall dock companies, and to transfer to the commission the powers, etc., of the Watermen's Co., compensating the latter. This bill, should it become law, will authorize the most momentous change known in the maritime history of the port of London.

The sailing list of the Dominion Line for next summer shows that, beginning April 20, a weekly service will be maintained between Liverpool and Quebec and Montreal by the existing fleet of vessels, with the addition of the White Star liner Germanic, renamed Ottawa. The Germanic was to have been put on the Canadian service last summer, but had to be sent to Southampton to replace the New York of the American Line. Since then she has been overhauled by Messrs Harland & Wolff, Belfast, chiefly in the matter of passenger accommodation. She will carry 150 cabin and about 80 steerage passengers, after a number of four-berth cabins have been provided for emigrants in place of the common living and sleeping accommodation for emigrants provided on some lines. The Germanic, though perhaps the oldest Atlantic liner afloat, has been remodeled at a cost of \$500,000, and is now a thoroughly up-to-date vessel, and under the name of the Ottawa should enjoy as long a run as she did when called the Germanic.



VOL. XXX.

CLEVELAND, O., DECEMBER 8, 1904.

No. 23.

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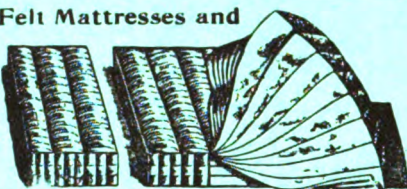
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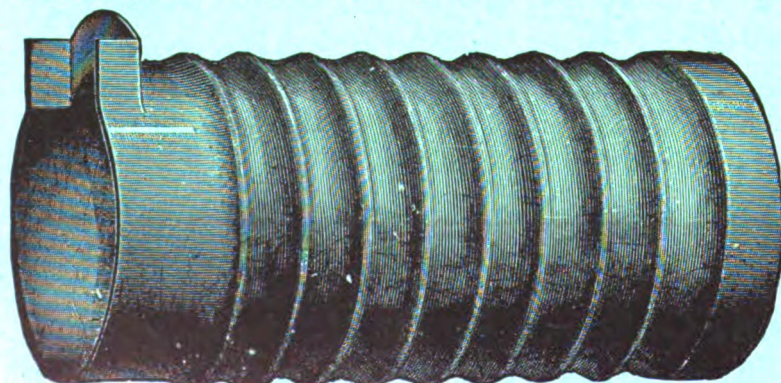
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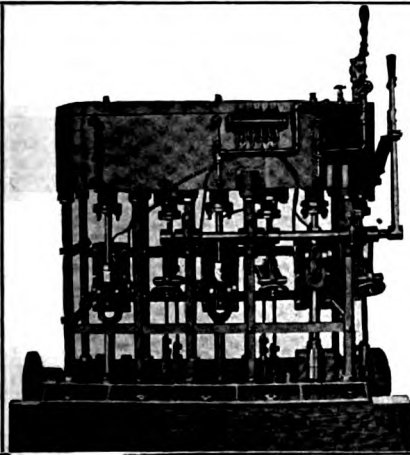
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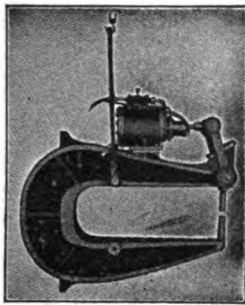
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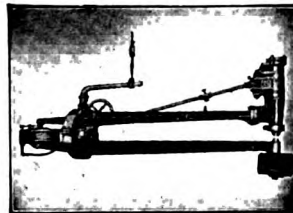
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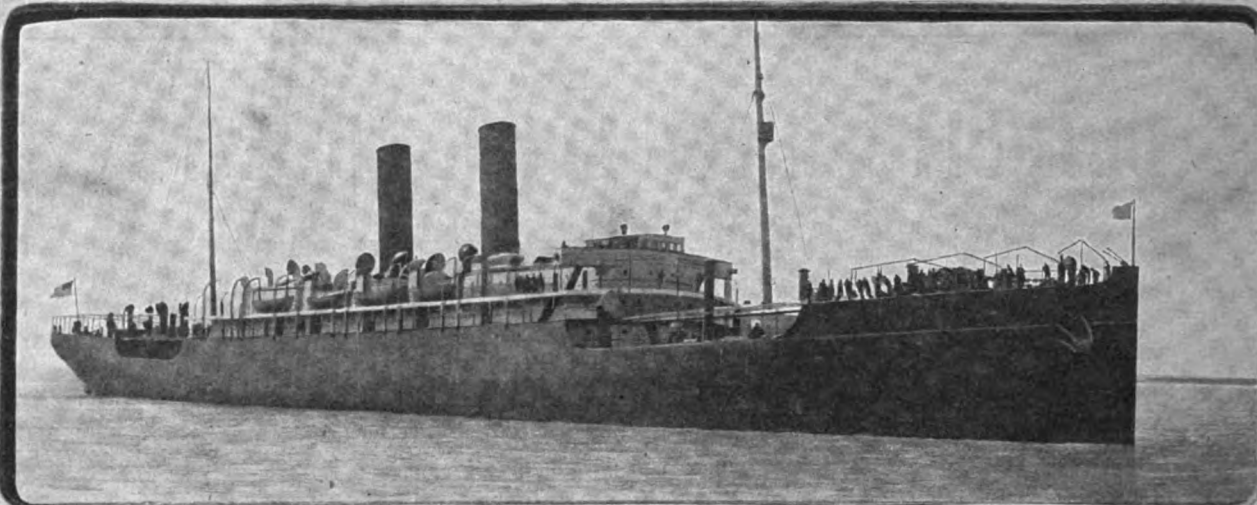
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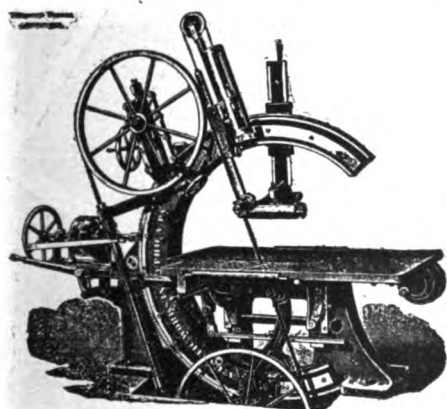
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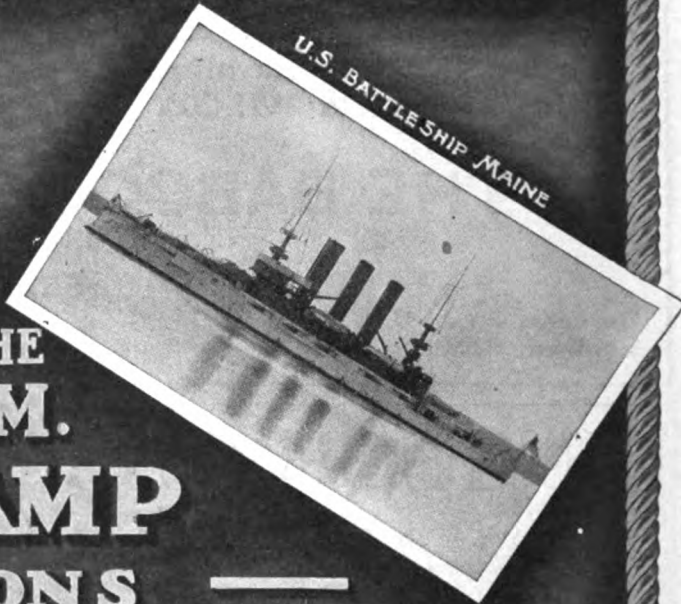


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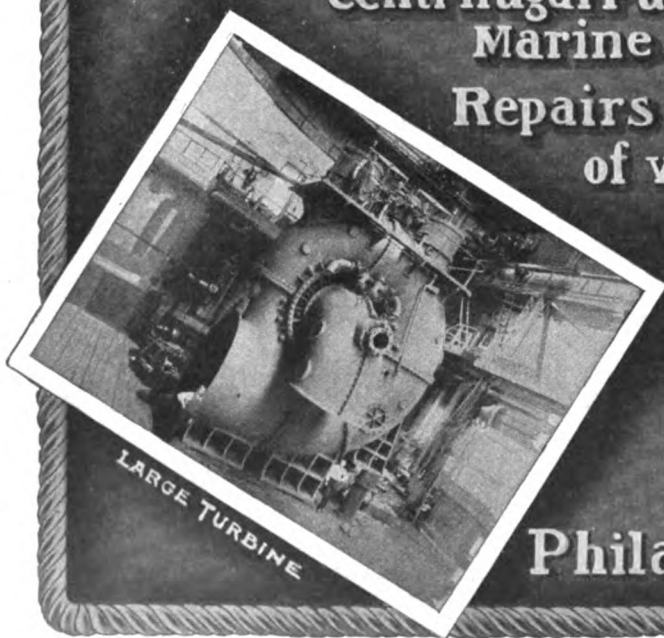
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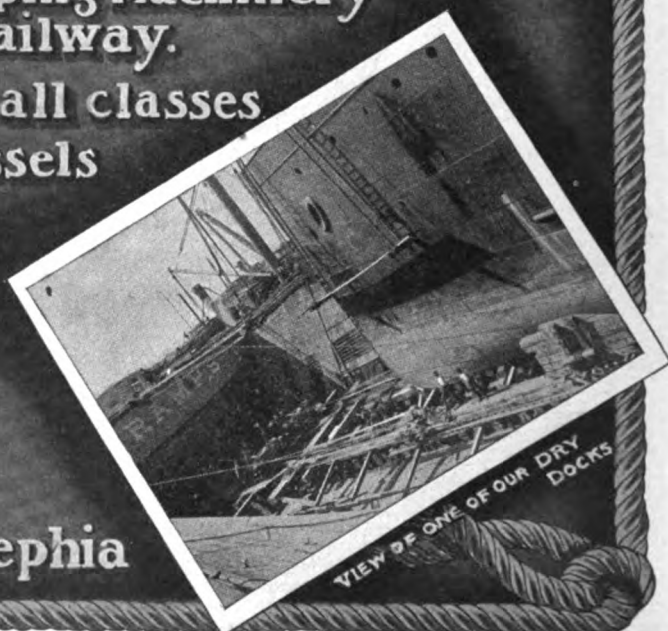
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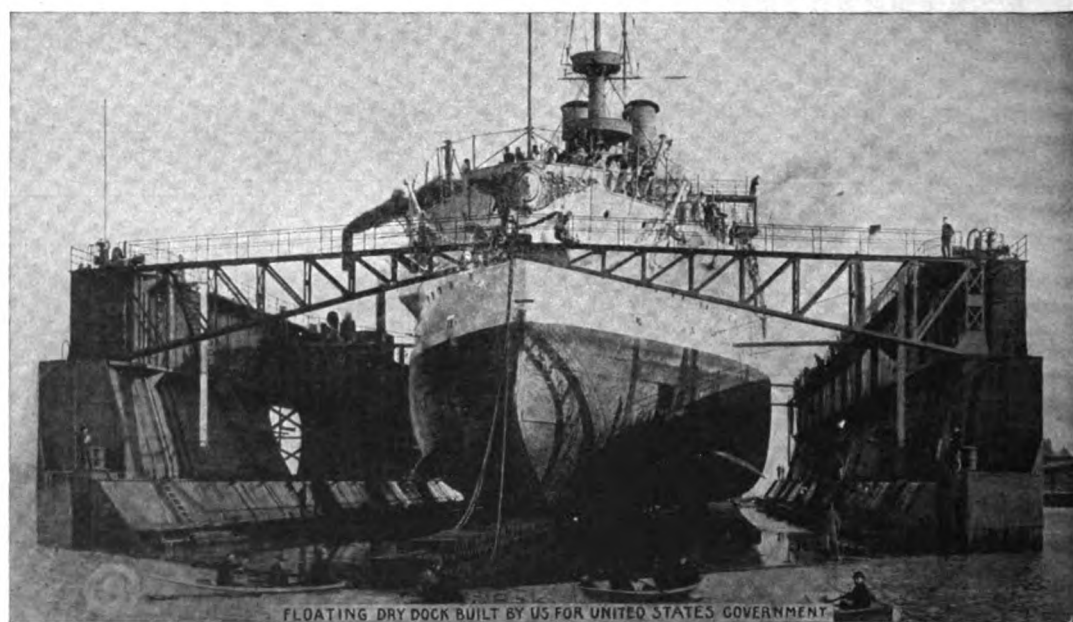
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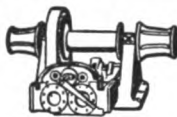
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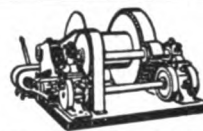
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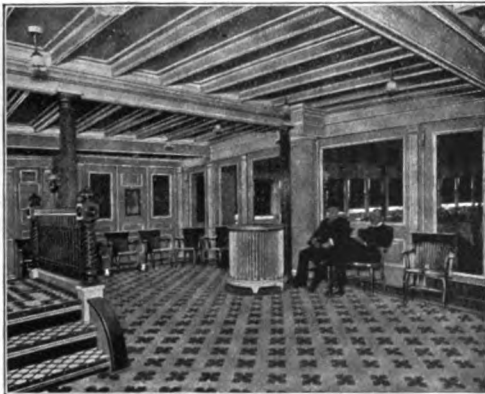
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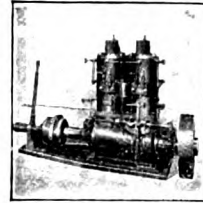
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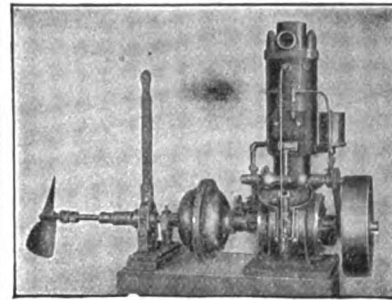
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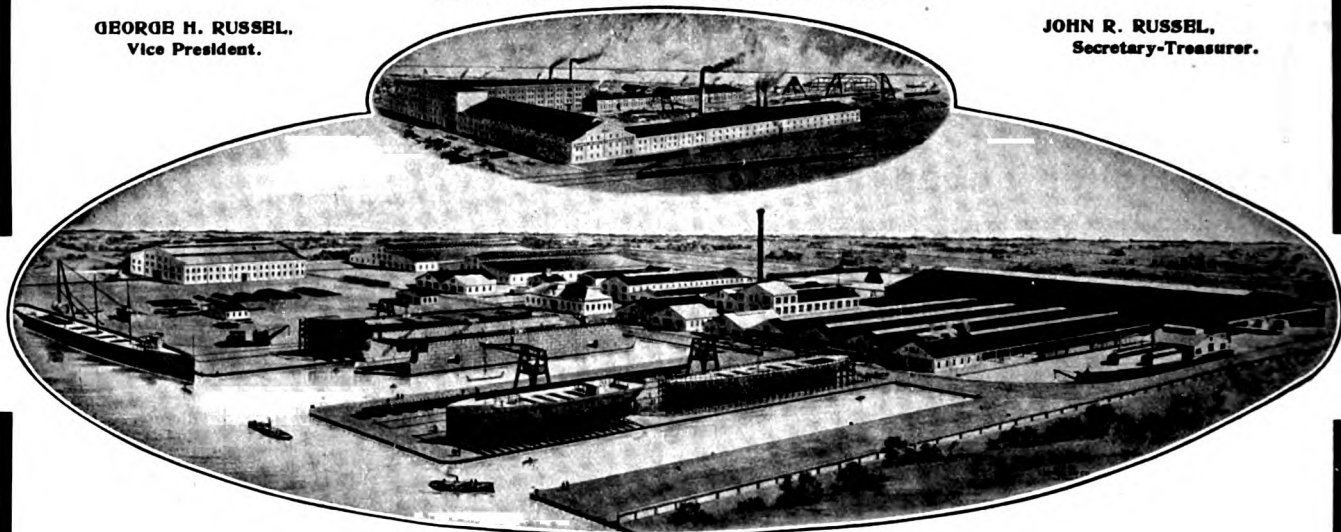
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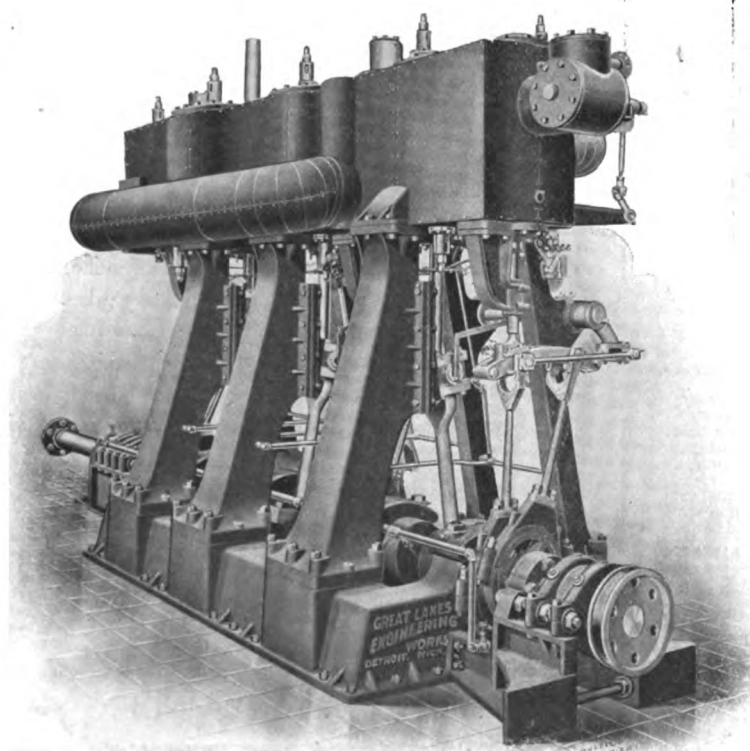
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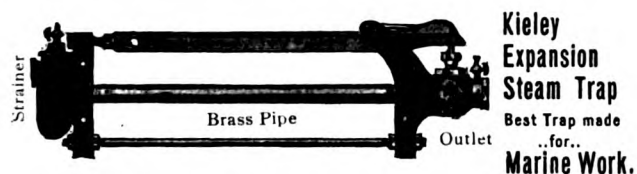
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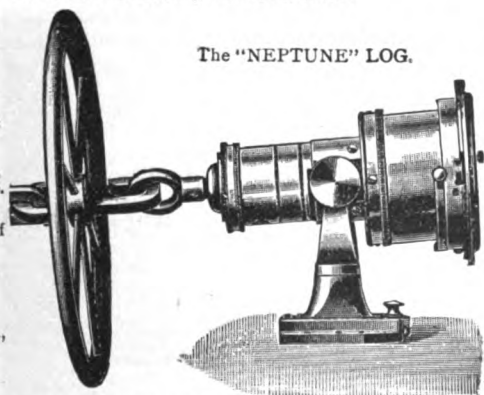
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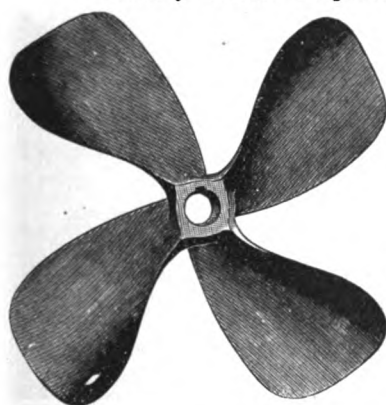
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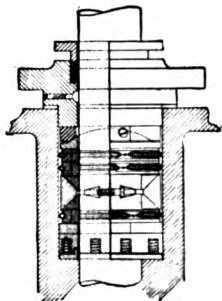
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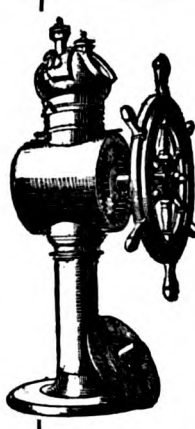
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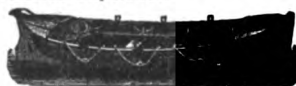
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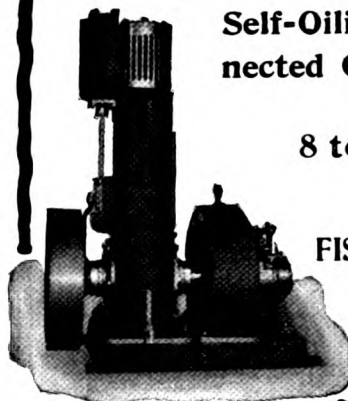
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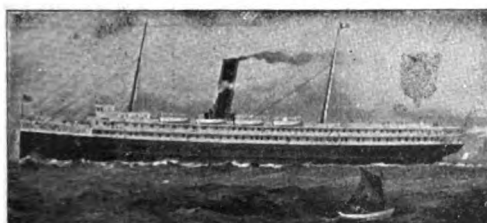
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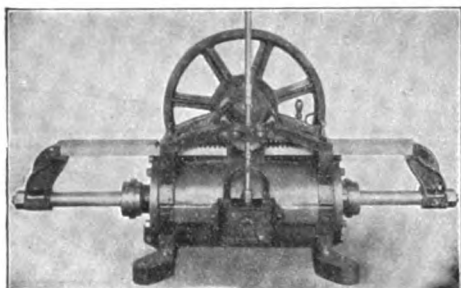
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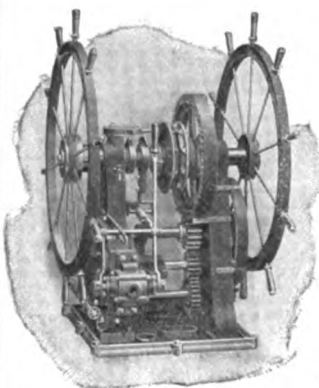
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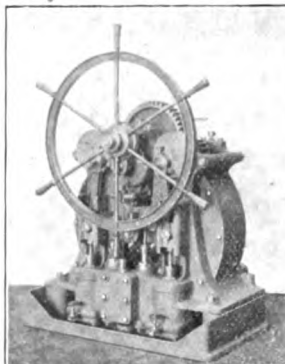
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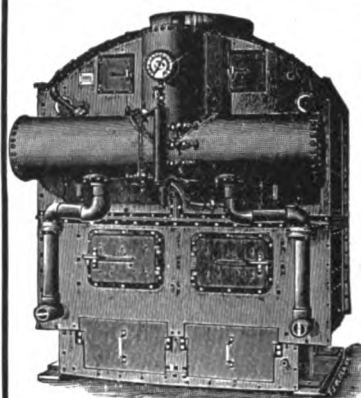


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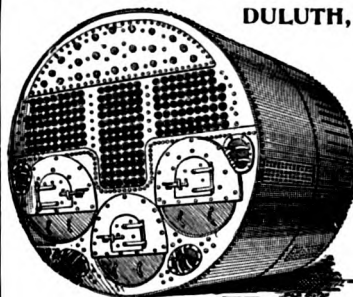
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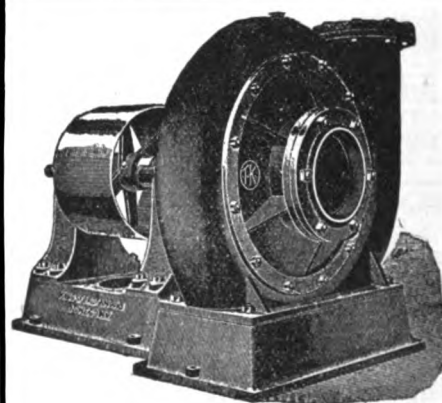
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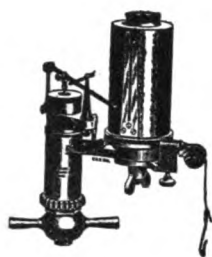
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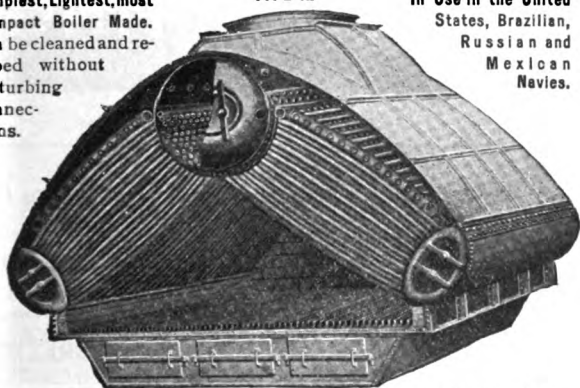
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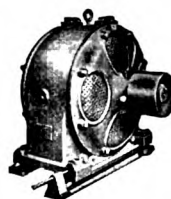
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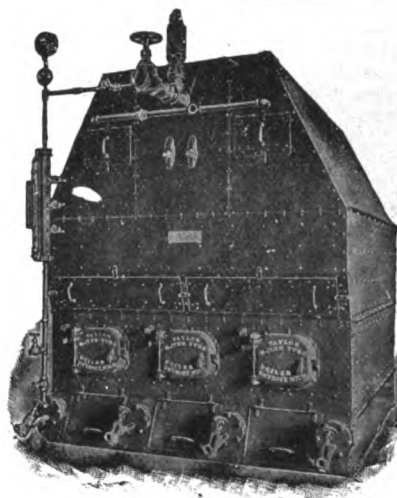
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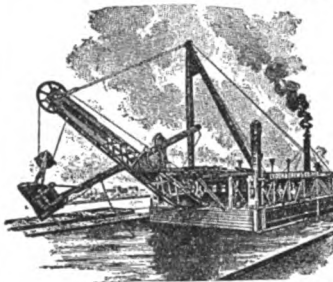
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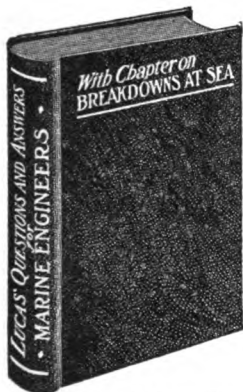
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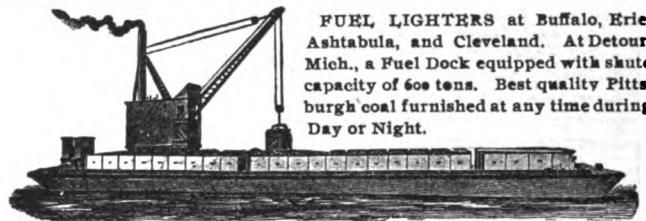
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Lunkenheimer Co.....Cincinnati.
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GAUGES, WATER.

Bonner & Co., Wm. T.....Boston.
Lunkenheimer Co.....Cincinnati, O.
Standard Gauge Mfg. Co.....Syracuse, N. Y.

GRAPHITE.

Dixon Crucible Co., Joseph.....Jersey City, N. J.

HAMMERS, STEAM.

Chase Machine Co.....Cleveland.

HEATING APPARATUS.

Sturtevant, B. F. Co.....Hyde Park, Mass.

HOISTS FOR CARGO, ETC.

American Ship Building Co.....Cleveland.
Brown Hoisting Machinery Co. (Inc.).....Cleveland.
Chase Machine Co.....Cleveland.
General Electric Co.....New York.
Georgian Bay Engineering Works.....Midland, Ont.
Hyde Windlass Co.....Bath, Me.
McMyler Mfg. Co.....Cleveland.
Marine Iron Co.....Bay City.
Mietz, Aug.....New York.
Pawling & Harnischfeger.....Milwaukee.
Westinghouse Electric & Mfg. Co.....Pittsburg, Pa.

HOLLOW STAYBOLT IRON.

Falls Hollow Staybolt Co.....Cuyahoga Falls, O.

HOSE, RUBBER.

New York Belting & Packing Co.....New York.

HYDRAULIC DREDGES.

Great Lakes Engineering Works.....Detroit.

HYDRAULIC TOOLS.

Watson-Stillman Co., The.....New York.

ICE MACHINERY.

Great Lakes Engineering Works.....Detroit.
Roelker, H. B.....New York.

INDICATORS FOR STEAM ENGINES.

American Steam Gauge Co.....Boston.
Ashton Valve Co.....Boston.

INJECTORS.

American Injector Co.....Detroit.
Crane Co.....Chicago.
Jenkins.....New York.
Lunkenheimer Co.....Cincinnati.
Penberthy Injector Co.....Detroit, Mich.

INSURANCE, MARINE.

Elphicke, C. W. & Co.....Chicago.
Fleming & Co., P. H.....Chicago.
Frankfort Marine, A. & P. G. Ins. Co.....New York.

INSURANCE, MARINE—Continued.

Gilchrist & Co., C. P.....Cleveland.
Hawgood & Co., W. A.....Cleveland.
Helm & Co., D. T.....Duluth.
Hutchinson & Co.....Cleveland.
McCarthy, T. R.....Montreal.
McCurdy, Geo. L.....Chicago.
Mitchell & Co.....Cleveland.
Parker Bros. Co., Ltd.....Detroit.
Peck, Chas. E. & W. F.....New York & Chicago.
Prindiville & Co.....Chicago.
Richardson, W. C.....Cleveland.
Sullivan, D. & Co.....Chicago.
Voss, F. D.....New York.

IRON CASTINGS.

Reading Iron Co.....Reading, Pa.

IRON ORE AND PIG IRON.

Bourne-Fuller Co.....Cleveland, O.
Hanna, M. A. & Co.....Cleveland.
Pickands, Mather & Co.....Cleveland.
Reading Iron Co.....Reading, Pa.

LAMPS, INCANDESCENT.

Westinghouse Elec. & Mfg. Co.....Pittsburg, Pa.
Sawyer-Man Electric Co.....Pittsburg, Pa.

LAUNCHES—STEAM, NAPHTHA, ELECTRIC.

Georgian Bay Engineering Works.....Midland, Ont.
Marine Construction & D. D. Co.....Mariner's Harbor, S. I., N. Y.
Truscott Boat Mfg. Co.....St. Joseph, Mich.
Willard, Chas. P.....Chicago.

LIFE PRESERVERS, LIFE BOATS, BUOYS.

Armstrong, Cork Co.....Pittsburg.
Drein, Thos. & Son.....Wilmington, Del.
Kahnweiler's Sons, D.....New York.

LIGHTS, SIDE AND SIGNAL.

Russell & Watson.....Buffalo.

LOGS.

Walker & Sons, Thomas.....Birmingham, Eng.
Also Ship Chandlers.

LUBRICATING GRAPHITE.

Dixon Crucible Co., Joseph.....Jersey City, N. J.

LUBRICATORS.

Crane Co.....Chicago.
Lunkenheimer Co.....Cincinnati.

LUMBER.

Martin-Barriss Co.....Cleveland.

MACHINISTS.

Chase Machine Co.....Cleveland.
Hickler Bros.....Sault Ste. Marie, Mich.
Lockwood Mfg. Co.....East Boston, Mass.
Macbeth Iron Co.....Cleveland.

MACHINE TOOLS (WOOD WORKING).

Atlantic Works, Inc.....Philadelphia.

MARINE RAILWAYS.

Hickler Bros.....Sault Ste. Marie, Mich.

MARINE RAILWAYS, BUILDERS OF.

Crandall & Son, H. I.....East Boston, Mass.

MATTRESSES, CUSHIONS, BEDDING.

Fogg, M. W.....New York.

MECHANICAL DRAFT FOR BOILERS.

American Ship Building Co.....Cleveland.
Detroit Ship Building Co.....Detroit.
Great Lakes Engineering Works.....Detroit.
Sturtevant, B. F. Co.....Hyde Park, Mass.

METALLIC PACKING.

Katzenstein, L. & Co.....New York.

METAL POLISH.

Bertram's Oil Polish Co.....Boston.

MOTORS, GENERATORS—ELECTRIC.

Fisher Electrical Works.....Detroit.
General Electric Co.....Schenectady, N. Y.
Sturtevant, B. F. Co.....Hyde Park, Mass.
Westinghouse Electric & Mfg. Co.....Pittsburg, Pa.

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NAUTICAL INSTRUMENTS.

Ritchie, E. S., & Sons.....Brookline, Mass.

NAUTICAL SCHOOLS.

Chicago Nautical School.....Chicago.

NAVAL ARCHITECTS.

Hynd, Alexander.....Cleveland.
 Kidd, Joseph.....Duluth, Minn.
 Kreer & Parsons.....Chicago.
 Lovejoy, H. O.....Buffalo.
 Matteson & Drake.....Philadelphia.
 Mosher, Chas. D.....New York.
 Nacey, James.....Cleveland.
 Rice, Henry.....Buffalo.
 Sadler, Perkins & Field.....New York.
 Wood, W. J.....Chicago.

OAKUM.

DeGrauw, Aymar & Co.....New York.
 Stratford, Oakum Co.....Jersey City, N. J.

OIL ENGINES.

Miets, Aug.New York.

OILS AND LUBRICANTS.

Dixon Crucible Co., Joseph.....Jersey City, N. J.
 Standard Oil Co.....Cleveland.

PACKING.

Crane Co.....Chicago.
 Jenkins Bros.....New York.
 Katzenstein, L. & Co.....New York.
 New York Belting & Packing Co.....New York.

PACKING TOOL.

Matteson & Drake.....Philadelphia.

PAINTS.

Baker, Howard H. & Co.....Buffalo.
 Detroit Varnish Co.....Detroit.
 Detroit White Lead Works.....Detroit.
 New Jersey Zinc Co.....New York.
 Upson-Walton Co.....Cleveland.

PATTERN SHOP MACHINERY.

Atlantic Works, Inc.....Philadelphia.

PILE DRIVING AND SUBMARINE WORK.

Buffalo Dredging Co.....Buffalo.
 Chicago & Gt. Lakes Dredge & Dock Co.....Chicago.
 Dunbar & Sullivan Dredging Co.....Buffalo.
 Fitz-Simons & Connell Co.....Chicago.
 Hickler Bros.....Sault Ste. Marie, Mich.
 Lake Superior Contracting & Dredging Co.....Duluth, Minn.
 Parker Bros. Co., Ltd.....Detroit.
 Smith Co., L. P. & J. A.....Cleveland.
 Starke Dredge & Dock Co., C. H.....Milwaukee.
 Sullivan, M.....Detroit.

PIPE, WROUGHT IRON.

Bourne-Fuller Co.....Cleveland, O.
 Crane Co.....Chicago.
 Macbeth Iron Co.....Cleveland.
 Reading Iron Co.....Reading, Pa.

PLANING MILL MACHINERY.

Atlantic Works, Inc.....Philadelphia.

PLATES—SHIP, STRUCTURAL, ETC.

Bourne-Fuller Co.....Cleveland, O.
 Otis Steel Co.....Cleveland.
 Reading Iron Co.....Reading, Pa.

PNEUMATIC TOOLS.

Allen, John F.....New York.

POLISH FOR METALS.

Bertram's Oil Polish Co.....Boston.

PRESSURE REGULATORS.

Kieley & Mueller.....New York.
 Ross Valve Co.....Troy, N. Y.

PROPELLER WHEELS.

American Ship Building Co.....Cleveland.
 Atlantic Works.....East Boston, Mass.
 Cramp, Wm. & Sons.....Philadelphia.
 Detroit Ship Building Co.....Detroit.
 Fore River Shipbuilding Co.....Quincy, Mass.
 Great Lakes Engineering Works.....Detroit.
 Hyde Windlass Co.....Bath, Me.
 Jenks Ship Building Co.....Port Huron, Mich.
 Lockwood Mfg. Co.....East Boston, Mass.
 Macbeth Iron Co.....Cleveland.
 Milwaukee Dry Dock Co.....Milwaukee.
 Newport News Ship Building Co.....Newport News, Va.
 Roelker, H. B.....New York.
 Sheriffs Mfg. Co.....Milwaukee.
 Superior Ship Building Co.....Superior, Wis.
 Thropp & Sons Co., J. E.....Trenton, N. J.
 Trout, H. G.....Buffalo.

PROJECTORS, ELECTRIC.

General Electric Co.....Schenectady, N. Y.
 Westinghouse Electric & Mfg. Co.....Pittsburg, Pa.

PUMPS FOR VARIOUS PURPOSES.

Blake, Geo. F., Mfg. Co.....New York.
 Great Lakes Engineering Works.....Detroit.
 Kingsford Foundry & Machine Works.....Oswego, N. Y.

PUNCHES, RIVETERS, SHEARS.

Allen, John F.....New York.

RANGES.

Russell & Watson.....Buffalo.

REFRIGERATING APPARATUS.

Great Lakes Engineering Works.....Detroit.
 Roelker, H. B.....New York.

REGISTER FOR CLASSIFICATION OF VESSELS.

Great Lakes Register.....Cleveland.
 Record of American & Foreign Shipping.....New York.

REPAIRS—ENGINE AND BOILER.

(See also Boiler Manufacturers and Engine Builders.)

Georgian Bay Engineering Works.....Midland, Ont.

RIVETING MACHINES.

Allen, John F.....New York.

RIVETS, STEEL FOR SHIPS AND BOILERS.

Bourne-Fuller Co.....Cleveland, O.

SAFETY VALVES.

American Steam Gauge & Valve Mfg. Co.....Boston.
 Ashton Valve Co.....Boston.
 Crane Co.....Chicago.
 Lunkenheimer Co.....Cincinnati.

SAIL MAKERS.

Baker, Howard H. & Co.....Buffalo.
 Upson-Walton Co.....Cleveland.

SALVAGE COMPANIES.

See Wrecking Companies.

SCHOOLS—NAVIGATION.

Chicago Nautical School.....Chicago.

SEARCH LIGHTS.

General Electric Co.....Schenectady, N. Y.
 Westinghouse Electric & Mfg. Co.....Pittsburg, Pa.

SHEARS.

See Punches, Rivets, and Shears.

SHIP AND BOILER PLATES AND SHAPES.

Bourne-Fuller Co.....Cleveland, O.
 Otis Steel Co.....Cleveland.
 Reading Iron Co.....Reading, Pa.

SHIP BUILDERS.

American Ship Building Co.....Cleveland.
 Atlantic Works.....East Boston, Mass.
 Bertram Engine Works Co., Ltd.....Toronto, Can.
 Buffalo Dry Dock Co.....Buffalo.
 Cramp, Wm. & Sons.....Philadelphia.
 Craig Ship Building Co.....Toledo, O.
 Chicago Ship Building Co.....Chicago.
 Detroit Ship Building Co.....Detroit.
 Fore River Shipbuilding Co.....Quincy, Mass.
 Great Lakes Engineering Works.....Detroit.
 Jenks Ship Building Co.....Port Huron, Mich.
 Lockwood Mfg. Co.....East Boston, Mass.
 Maryland Steel Co.....Sparrows Point, Md.
 Milwaukee Dry Dock Co.....Milwaukee.
 Newport News Ship Building Co.....Newport News, Va.
 New York Shipbuilding Co.....Camden, N. J.
 Roach's Ship Yard.....Chester, Pa.
 Shipowner's Dry Dock Co.....Chicago.
 Smith & Son, Abram.....Algonac, Mich.
 Willard, Chas. P. & Co.....Chicago.

SHIP CHANDLERS.

Baker, Howard H. & Co.....Buffalo.
 Marine Mfg. & Supply Co.....New York.
 Upson-Walton Co.....Cleveland.

SHIP DESIGNERS.

Kidd, Joseph.....Duluth.
 Kreer & Parsons.....Chicago.
 Matteson & Drake.....Buffalo.
 Rice & Lovejoy.....Buffalo.
 Steel, Nacey & Hynd.....Cleveland.
 Wood, W. J.....Chicago.

SHIP LANTERNS AND LAMPS.

Russell & Watson.....Buffalo.

SHIP TIMBER.

Martin-Barriss Co.....Cleveland.

SMOOTH-ON COMPOUND, FOR REPAIRS.

Smooth-On Mfg. Co.....Jersey City, N. J.

STAYBOLTS, IRON OR STEEL, HOLLOW OR SOLID.

Falls Hollow Staybolt Co.....Cuyahoga Falls, O.
 Reading Iron Co.....Reading, Pa.

STEAM VESSELS FOR SALE.

Gilchrist & Co., C. P.....Cleveland.
 Holmes, Samuel.....New York.
 Lester, S. S.....Quebec, Can.
 McCarthy, T. R.....Montreal, Can.

STEAMSHIP LINES, PASS. AND FREIGHT.

American Line.....New York.
 Anchor Line.....Buffalo.
 Boston Steamship Co.....Boston.
 International Mercantile Marine Co.....Philadelphia.
 New York & Cuba Mail S. S. Co.....New York.
 Red Star Line.....New York.
 United Fruit Co.....Boston.

STEEL CASTINGS.

Macbeth Iron Co.....Cleveland.
 Otis Steel Co.....Cleveland.

STEERING APPARATUS.

American Ship Building Co.....Cleveland.
 Chase Machine Co.....Cleveland.
 Dake Engine Co.....Grand Haven, Mich.
 Detroit Ship Building Co.....Detroit.
 Hyde Windlass Co.....Bath, Me.
 Jenks Ship Building Co.....Port Huron, Mich.
 Marine Mfg. & Supply Co.....New York.
 Moulton Steering Engine Co.....New York.
 Pawling & Harnischfeger.....Milwaukee.
 Sheriffs Mfg. Co.....Milwaukee.

SUBMARINE DIVING APPARATUS.

Morse & Son, A. J.....Boston.
 Schrader's Son, A.....New York.

SURVEYORS, MARINE.

Gaskin, Edward.....Buffalo.
 Hynd, Alexander.....Cleveland.
 Lovejoy, H. O.....Buffalo.
 Matteson & Drake.....Philadelphia.
 Parker Bros. Co., Ltd.....Detroit.
 Nacey, James.....Cleveland.
 Rice, Henry.....Buffalo.
 Steel, Adam.....Cleveland.
 Wood, W. J.....Chicago.

TESTS OF MATERIALS.

Hunt, Robert W. & Co.....Chicago.

TILING, INTERLOCKING RUBBER.

New York Belting & Packing Co.....New York.

TOOLS, METAL WORKING, FOR SHIP AND ENGINE WORKS.

Allen, John F.....New York.
 Watson-Stillman Co.....New York.

TOOLS, WOOD WORKING.

Atlantic Works, Inc.....Philadelphia.

TOWING MACHINES.

American Ship Windlass Co.....Providence, R. I.
 Chase Machine Co.....Cleveland.

TOWING COMPANIES.

Donnelly Salvage & Wrecking Co.....Kingston, Ont.

TRAPS, STEAM.

Kieley & Mueller.....New York.
 Sturtevant Co., B. F., Hyde Park, Mass.

TRUCKS.

Boston & Lockport Block Co.....Boston.

TUBING, SEAMLESS.

Shelby Steel Tube Co.....Pittsburg, Pa.

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VALVES, STEAM SPECIALTIES, ETC.

American Steam Gauge & Valve Mfg. Co. Boston.
Ashton Valve Co. Boston.
Crane Co. Chicago.
Jenkins Bros. New York.
Kieley & Mueller New York.
Lunkenheimer Co. Cincinnati.
Ross Valve Co. Troy, N. Y.

VALVES FOR WATER AND GAS.

Lunkenheimer Co. Cincinnati.
Ross Valve Co. Troy, N. Y.

VARNISHES.

Detroit Varnish Co. Detroit.
Detroit White Lead Works. Detroit.
New Jersey Zinc Co. New York.
Also Ship Chandlers.

VENTILATING APPARATUS FOR SHIPS.

Sturtevant, B. F. Co. Hyde Park, Mass.

VESSEL AND FREIGHT AGENTS.

Boland, John J. Buffalo.
Brown & Co. Buffalo.
Elphicke, C. W. & Co. Chicago.
Fleming & Co., P. H. Chicago.
Gilchrist & Co., C. P. Cleveland.
Hall, John B. Buffalo.
Helm & Co., D. T. Duluth.

VESSEL AND FREIGHT AGENTS—Con.

Hawgood & Co., W. A. Cleveland.
Holmes, Samuel New York.
Hutchinson & Co. Cleveland.
Lester, S. S. Quebec, Can.
McCarthy, T. R. Montreal.
Mitchell & Co. Cleveland.
Parker Bros. Co., Ltd. Detroit.
Prindville & Co. Chicago.
Richardson, W. C. Cleveland.
Sullivan, D. & Co. Chicago.

WATER GAUGES.

Bonner & Co., Wm. T. Boston.
Lunkenheimer Co. Cincinnati, O.

WIRE ROPE AND WIRE ROPE FITTINGS.

Baker, H. H. & Co. Buffalo.
DeGrauw, Aymar & Co. New York.
Upson-Walton Co. Cleveland.

WHISTLES, STEAM.

American Steam Gauge & Valve Mfg. Co. Boston.
Ashton Valve Co. Boston.
Lunkenheimer Co. Cincinnati.

WINDLASSES.

American Ship Windlass Co. Providence, R. I.
American Ship Building Co. Cleveland.
Hyde Windlass Co. Bath, Me.
Jenks Ship Building Co. Port Huron, Mich.
Marine Mfg. & Supply Co. New York.

WINCHES.

American Ship Windlass Co. Providence, R. I.
Georgian Bay Engineering Works. Midland, Ont.
Hyde Windlass Co. Bath, Me.

WOOD WORKING MACHINERY.

Atlantic Works, Inc. Philadelphia.

WRECKING AND SALVAGE COMPANIES.

Donnelly Salvage & Wrecking Co. Kingston, Ont.
Parker Bros. Co., Ltd. Detroit.

YACHT AND BOAT BUILDERS.

Bertram Engine Works Co., Ltd. Toronto, Can.
Drein, Thos. & Son. Wilmington, Del.
Georgian Bay Engineering Works. Midland, Ont.
Truscott Boat Mfg. Co. St. Joseph, Mich.
Willard, Chas. P. & Co. Chicago.

YAWLS.

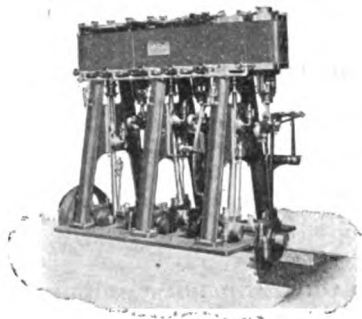
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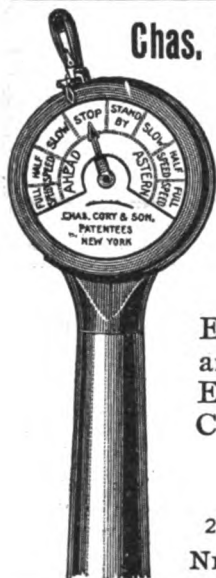
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Cleveland, O.



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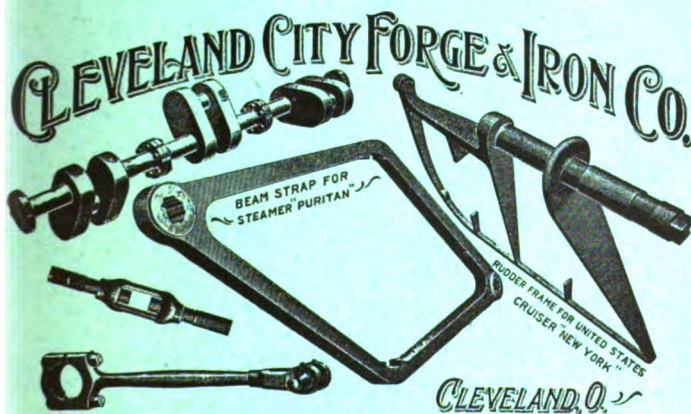
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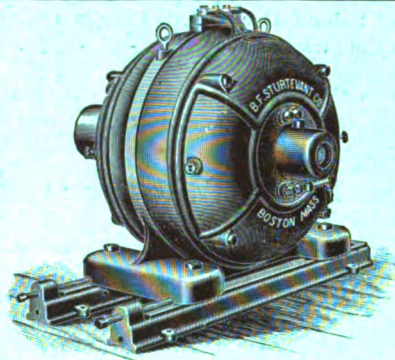
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No. 40, Toledo and Buffalo Accom.	†10:00 a.m.	†10:30 a.m.
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No. 9, Day Express	†6:10 a.m.
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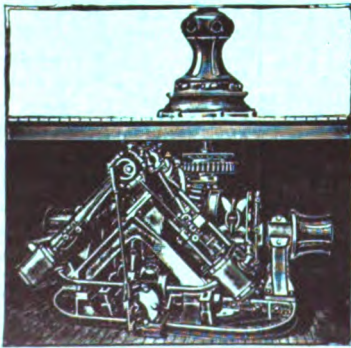


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